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JERICHO : CITY AND NECROPOLIS

Fifth Report

VII. General Report for 1935. The Early Bronze Age

By JOHN GARSTANG

WITH PLATES XXIII-LV

VIII. Pottery of the Chalcolithic and Neolithic Levels, 1935

By J. P. DROOP

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IX. Notes on the Flint Implements, 1935

By JOAN CROWFOOT

WITH PLATES LVI-LIX

VII. GENERAL REPORT FOR 1935. THE EARLY BRONZE AGE

AFTER a year's interval a further generous donation from Sir Charles Marston made it possible to resume excavations at Jericho in the spring of 1935, this time with the special object of examining the deeper levels. The results have been very satisfactory from the archaeological standpoint, and in some respects astonishing. Building levels and stratified deposits of the Early Bronze Age were traced through a depth of 5 metres (16 feet); and at the bottom lay another intact stratum 1.5 metres thick representing the chalcolithic culture which has attracted much interest and discussion since the late Père Mallon's discoveries at Tell Ghassoul.

Below this level a whole new culture came to light, distinguished by plastic images, neolithic pottery with Thessalian resemblances, flint implements conforming generally with the so-called Tahurian types,¹ stone utensils, and a series of superposed burnished house-floors between

1. René Neuville, *Le Préhistorique en Palestine*, pp. 19 ff. Cf. also the same savant's *L'Outillage en Silex de Teleilat Ghassul*,

which the deposits lay in sealed stratification.¹ These discoveries took us down, in an ever narrowing space, a further 6.5 metres, exactly as far again as the upper layers, and brought us almost to the level of our zero datum, work having begun at +13.50. Lastly, at the bottom of all, came a deposit with three occupation levels of a still earlier phase in the Stone Age, characterised by a microlithic culture. We cannot give any reliable estimate even of the millennium B.C. to which these lowest discoveries relate; but they show that the site of the historic city had been occupied first by a settled agricultural community with a neolithic culture, many centuries earlier than has been hitherto suspected. It remains to be seen with the progress of research whether the conditions of life in the Jordan Rift, and in particular the abundant water supply of the site, attracted settlers to Jericho earlier than elsewhere, and singled it out as the cradle of prehistoric society and culture. This may prove to be the case; but few other sites have been bottomed, and the deepest excavations at Beisan and Megiddo, which penetrated to the virgin soil or rock, show no signs of similar urban agglomerations, nor, indeed, of a neolithic culture. One has to look as yet to the far north of Syria, at Sakje Geuzi,² for any settlement of like character.

The AREA chosen for this investigation lay in the NE. corner of the upper or brick-walled city, comprising Square E 7 with its surroundings in the Plan published in *Annals*, XIX, Pl. IX. This spot was selected for a number of reasons: it adjoined the area superficially examined by Watzinger and Sellin (*Jericho*, Plan, Sq. E 6), it offered a reasonably level and denuded surface of about 1000 square metres, and it was conveniently placed for the removal of the debris without the use of rails. The area proved to be rather too much denuded superficially, for we missed the decisive links with the M.B. strata of the Palace Area (*Annals*, XXI, p. 99); on the other hand, it provided ample compensation in the lower levels.

EXCAVATIONS began on December 13th, 1934, and continued with only occasional interruptions due to rain and public holidays, and a week's interval from February 27th, until March 13th, 1935. During

1. This culture, with its neolithic pottery context, is called tentatively 'Neo-Tahunian' in the following pages, the flint implements resembling mostly those of Tahunian II. Unfortunately the upper Tahunian types so ably selected by M. Neuville were mostly surface finds dissociated from their pottery and other relations. The term Upper Neolithic would now seem preferable.

² 2. *Annals*, I (1908), p. 116, and V (1913), pp. 63 ff. Most of the pottery unhappily still awaits publication.

the full season a gang of sixty to eighty workmen was normally employed ; but only a selected few were retained for the final investigation in the lowest levels. With proper supervision and considerate treatment, the Palestinian can be trained to do excavation work as well as any other Eastern people ; indeed, a few of those who have annually gathered round us for the winter season have become experts, and can be entrusted with technical jobs normally undertaken by members of the European staff. There is no longer any real need to import foreign labour.

The STAFF included Mr. G. M. FitzGerald, M.A., who, in addition to supervising the excavations half the day, examined and sorted the selected fragments of pottery and maintained a detailed log-book of these all-important pieces of evidence, registered by Rooms or Areas and their levels. This record fills three note-books, each containing about 2000 methodical entries : it has proved of inestimable value in studying the results, and the expedition is particularly indebted to Mr. FitzGerald for this splendid piece of voluntary service. Dr. and Mrs. Jameson also accompanied the expedition as voluntary helpers, but were obliged to leave rather early in the season. The plans and sections at various depths are the painstaking work of Mr. J. Richmond : his task was made difficult by the complication of rebuildings and inconstant variations in the occupation levels at different depths.¹ The measured drawings of the pottery were done with customary skill by Bulos Effendi el Araj, who also acted as clerk of works, and supervised the datum points from which the find-spots were registered. Miss Meroë Garstang acted part of the time as secretary and keeper of records until the undertaking of these duties by Miss U. Pares (also a volunteer) released her for the excavation and recording of several tombs, a task for which she has shown special aptitude, and for the supervision of some supplementary investigations on the Palace Area. These two young ladies also together classified the selected pottery specimens by types, and spotted their levels (to 10 cms.) on a comprehensive chart which recorded diagrammatically the developing stratifications of the main excavation. Mrs. Garstang as usual supervised the camp arrangements, and the good health enjoyed by the party is a tribute to her experienced management. She also personally fitted and mended most of the objects reproduced in our plates, which show an exceptional number of completed forms.

1. See further below.

All the pottery fragments were washed under her supervision previous to a preliminary selection for Mr. FitzGerald's work : at a round estimate their number must have exceeded 100,000. Dr. Aage Schmidt again assisted with his customary zeal in the mending of the pottery, and managed to preserve a number of fragile vessels in the field. He also took a series of studio photographs of our pottery types, which have proved very useful in the study of our results. The discovery of Stone Age deposits disclosed a gap in our ranks ; but happily Miss Joan Crowfoot, daughter of the retiring Director of the British School of Archaeology in Jerusalem, volunteered to register and classify the flint implements discovered, and devoted herself wholeheartedly and methodically to this technical and considerable task ; the specimens numbered over 500. Her report, printed *in extenso* below, is a model of clarity. The expedition at this stage was also indebted to M. Neuville and Miss Garrod for their visits and technical advice. The visits at other times of brother excavators and archaeologists from Palestine, Syria, Asia Minor, Irak, and Egypt, and exchange of views with them, added to the pleasure and interest of our work. In England, Miss M. Ratcliffe has again prepared all the inked drawings and arranged the plates of this report for publication.

CLASSIFICATION AND TERMINOLOGY. Study of the Early Bronze Age in Palestine is still in its infancy, and no system of terminology has yet been framed that meets with general agreement. The excavators at Megiddo have wisely classified their results by stages : Mr. FitzGerald has been able to advance a step further and associate the pottery finds at Beisan with successive building levels. Mr. Starkey, at Tell Duweir, avoids the misleading expression Early Bronze Age and speaks of a Copper Age, a term theoretically admissible but not altogether helpful. It is certain that most metal implements of the period are of relatively pure copper : but it is also to be noted that flint implements, of a particular ('Cananean') series, were much more freely made and used, especially in the early phases of this age, so that if a term to designate the culture previous to the free use of bronze is to be adopted it should be 'eneolithic' or 'chalcolithic.' The latter term is, however, already applied to a culture combining similar flint implements with distinctive pottery, found isolated by Père Mallon at Ghassoul ; and we reserve the term chalcolithic for this special culture, which at Jericho finds a definite place in the stratification. Pending a general reclassifica-

tion acceptable to all, we retain also the term Early Bronze Age for the time being, not because of the metal used, but because it is the most familiar name for the period, much as one continues to speak of 'Early Minoan' in Cretan archaeology without thought of Minos.

There is a growing opinion also that the related culture with flat-bottomed jars, thin scrabbled pottery, and small lug handles, classed by Dr. Albright on his results at Tell Beit Mirsim as M.B. i (his level H), might be more conveniently classed at the end of the Early Bronze Age series as (say) E.B. iii. This ware is freely represented at Tell Duweir; and at Jericho, as described below, soundings below the excavated levels of the Palace Area have confirmed its place between the recognised Middle Bronze and the Early Bronze Age levels.

It follows that the earlier culture represented by the pottery of our Tomb A at Jericho, formerly regarded as intermediate and classed as M.B. i (*Annals*, XIX, pp. 18 ff. and 41 ff.), falls in the general revision now possible to the Upper E.B. series. This change, and fresh information now available, will necessitate some modification of our earlier descriptions.¹ This is reserved for a later opportunity: meanwhile it should be noted that the main brick wall on the northern brink of the slope proves to have an earlier origin than was formerly inferred, being in fact contemporary with Tomb A, and hence to be classed now as E.B. ii. This becomes the B wall of our Plans on Plate XI of *Annals*, XIX, replacing the conjectural line there indicated. The D wall presumably followed the same line, as it did along the western side, and there is some indication that this was the case.

THE STRATIFICATION. In some few houses, against the S. face of the city wall, stratified deposits were found as high as 13.50 m. above zero datum (notably in Rooms 109 and 100: Plan I). But over the area as a whole the surface contained an admixture of M.B. and even later pottery, and good ground was not reached until somewhat below the 12-metre level. Even then a line of disturbance could be traced by the intrusions of later date, passing down through the upper levels, from west to east, and particularly noticeable in the Rooms 104-120 (Map I) near the brink of the Tell. Eventually it was found that a stone drain of M.B. character lay at level 10.50 across one of the rooms (126 in Map II, Sq. 2, c), and descended somewhat steeply eastward. This

1. Corrigendum: *Annals*, XXI, p. 133, § 'Jerusalem: Palestine Museum': for 'Room 43 (scarabs)' read 'Tomb 43.'

secondary drainage system reasonably accounts for the disturbance and intrusions along its line. However, such disturbances were few and readily localised, and errors and discrepancies due to such causes have been eliminated.¹ Below this disturbance, and otherwise in general, the stratification was generally reliable, and that of Lower E.B. seemed to be intact.

A greater difficulty in interpreting the results arose from the natural fall of the ground towards the east, and this was particularly perplexing during the early stages of the work, before the sections in the facing of the cutting began to indicate the angle of the slope; even then the striations in the earth remained obscure, and reliance had to be placed upon the foundations of buildings, an unsatisfactory criterion, as these would presumably have been flattened out as far as practicable at the time of building. When once the foundations of the city wall had been disclosed, however (Section A-B, Pl. XXVI), they showed that the slope amounted, at the time the foundations were laid, to as much as 3 m. in 15, or 1 in 5, notwithstanding obvious efforts of the builders to level up certain sectors. Thus in the central position (underlying Rooms 99, 135, 137 and 138) the slope is only about 1 in 15, to become immediately much steeper at the ends; and in the 9-metre level, the walls of Rooms 147 and 145 repeat these indications, but 2 metres lower the north wall of Room 180 shows a fall of 51 cms. in 4.50 m., about 1 in 9. It might reasonably have been supposed that the deeper the work proceeded, the less accentuated would become the original slope; but doubtless, owing to the great depth of the underlying deposits, this proved not to be the case until well down in the neolithic levels. Mature study of the pottery types in relation to the buildings has made it clear that the slope was even greater in the 7 m. and 8 m. levels than above. This may be readily seen by comparing the levels of certain peculiar orthostatic walls, one of which, numbered 199, is to be seen in section E-F in the 6-metre level (Pl. XXVI), while another was found between the Areas 186 and 188 (Plan, Pl. XXIV, b, and Pl. XLVIII, c) at the foundation level of Room 173 (c. 8.30) in Section C-D. Now these areas produced the most

1. It may be noted that intrusion or disturbance was indicated in Room 101 down to level 11.00 m.; in 103 also to 11.00, to the east of this room to level 10.30 m.; in Room 104 to 11.75; in 105 and 106 to 11.38; in 107 to 11.20; in 108 to 11.7; in 109 partially to 12.10; in 110 to 11.50; in 113 to 10.50; in 114 to 11.38; in 116 to 10.74; in 117 to 10.11; in 118 to 10.76; in 119 to 9.66; in 120 to 9.92; in 121 to 9.72; in 122 to 9.61; in 123 to 12.00; in 126 to 11.38; in 127 to 11.70; in 128 to 11.10; in 129 to 11.30; in 138 to 9.88, and in 139 to 9.78; and lastly, in 140 down to 10.38.

abundant evidence of the chalcolithic origin of these orthostatic buildings (below, Pls. XLI-XLII), which, being the uppermost of their sort, ought to be associated in a common stratum. Immediately above them in confirmation was a different, round house, system (Plan XXIV, b, and Pl. LI, a), the context of which was Lower E.B., though the foundations of no. 173 rested in the chalcolithic layer. Following up this clue, it is possible to trace a thick chalcolithic deposit continuously down the slope from west to east through Areas 185, 195, etc., revealing the angle of fall as about 2 m. in 12, or 1 in 6 at that time and place. For this reason some of our plans, though faithfully reproducing the buildings disclosed, do not necessarily represent contemporary building levels. The round house 194 (shown by a dotted line in Sq. 4, b, on Pl. XXIV, b), for example, is to be associated with the system of round houses 173, 177, etc., on that plan, though its foundations were 1.68 m. lower at level 6.13 as compared with 7.81 of Room 173.

Looking now at the section from north to south, G-H (Pl. XXV, b), we do not find the indications of a similar general fall in either direction. Some of the lower walls abutting on the city wall do, in fact, fall slightly southward, and in the vicinity of the street lines in the 9 m. and 10 m. levels there are local discrepancies; but on the whole the building levels may be regarded as horizontal to a margin of half a metre, and a scrutiny of the associated pottery bears this out.

With these considerations in mind for the purposes of this report we have divided the plans of the area longitudinally (*i.e.* from north to south) into parallel strips, 5 m. wide, and we have taken the contents of the rooms in and overlapping Strip no. 2, which comprise some of the most instructive and characteristic deposits (*e.g.* nos. 109, 141, 167-8, etc.) as the type basis of our stratification; these are shown by metre levels on our Pls. XXVII-XXX, XXXVI-XXXVII and XL-XLI. The error of relative level due to the dip or rise at the edges of the strip is ± 25 cms., which may be regarded as negligible. By the side of these, the stratified remains of the other strips fall for the most part readily into place, by adding the coefficient of dip, which is, however, not constant, but varies from .60 to .25 m. per strip according to the level or local context. By this process, though it is not free from error, the strata of the several strips can be brought theoretically into line.¹

1. Cf. Droop, *Archaeological Excavation* (1915), p. 18 and Fig. 2.

As a safeguard the basis of our classification and the ranges of the pottery types, some of which are shown in the chart on Pl. XXXV, are derived as far as possible from the specimens in Strip 2. Objects from other strips are shown separately so far as practicable, and their strip number is indicated below the figure which indicates their level.

The levels of the successive cultures based on the deposits from Strip 2 may be conveniently summarised with reference to Section G-H, which cuts along this strip at 1 m. from its western limit. The neolithic levels begin at zero: in these pottery makes its appearance at about 6·70 m., and the 'Tahunian' types of flints disappear about 7·10 m. Chalcolithic pottery with 'Cananean' flints appears immediately, and ceases with the orthostatic buildings at about 8·30. The E.B.A. occupies all the higher levels, in which we draw a line between Lower E.B. and Upper E.B. at about 10·30 m. This line, though only provisional, is not altogether arbitrary; it corresponds with certain distinctive changes in the ceramic types, described below, as well as in the features of domestic architecture. Upper E.B. (or E.B. ii) embodies the two metres between 10·30 and 12·30, thus including the main floors of the houses 109 and 100 against the city wall.

ARCHITECTURE IN THE EARLY BRONZE AGE

(PLATES XXIII-XXVI, XLVII-LI)

The *Main City Wall*, which bounds our area on the north, was bared on its southern side down to its foundations, and proves to be one of the imposing monuments of the site. Photographs taken in successive weeks during the progress of the work are reproduced on Pl. XLVII, and the wall face is shown in elevation in the sectional view AB on Pl. XXVI. It is built for the most part of large mud bricks nearly square, and is about 4 m. in thickness; it is still preserved to an average height of 3 m., but in places (*e.g.* in Strips 2 and 5) it stands considerably higher. Its foundations fall eastward, in the exposed sector, from level 12·06 m. above zero datum on the west (whence they fall slightly as the wall continues westward) to 9·30 m. on the east, where the wall turns south (enclosing Room 244). This fall is not regular, for the foundations can be seen to rise very steeply below the room numbered 100, and again below no. 99. Both these features are curious,

and involve problems which await investigation. Below Room 100, in area 144, in particular, the foundations are interrupted, just before the rise takes place, by a pre-existing house wall of no particular solidity. As the foundations of the city wall consist generally of large stones set in three or four rough courses, giving a height of more than half a metre, the fact that so solid a construction should be interrupted in this way suggests some special circumstances. Below Room 98 the depth of the foundations is substantially increased, though the ground rises; and collaterally with this anomaly may be noted the presence of a mason's building-stone set into the brick-work at level 14.04 m., just above. This stone not only indicates the original facing line of the brick-work, but marks a different style and construction, the bricks above being uniformly thinner than those below in the proportion of 6 : 5.

It looks as though the preserved sector of the main north wall westward of this point is a later reconstruction, and the way it is set into the main western wall also indicates that the two were not built at the same time. It is significant that the stratification of pottery corresponding to the 11.50 m. level in Room 109 falls slightly below the foundation level of the main wall under Rooms 99 and 98; while below the wall at certain places farther west in this sector there are traces of conflagration. As for the easternmost sector it is noteworthy that in Rooms 144 and 244 the foundations of the main wall descend as low as the silo system which elsewhere may be seen (Plan II, Pl. XXIII, b) to pervade Rooms 131 and 140 (in Strips 1 and 2) in the 10-metre level, therefore more than a metre below the town wall in those strips. It remains uncertain whether the inception of the town wall dates from the period of this level of occupation (in which case the building must have been begun at the eastern end and only completed after considerable intervals), or whether for some reason the scarp of the hill was cut away before the corner-bed of foundation stones was laid. It is certainly remarkable that this corner rests upon a piece of older brick-work constructed with wide bonding in the style now ascertained to be characteristic of the earliest phase of the Early Bronze Age. A picture of this feature is shown on Pl. L, c. [It was formerly thought that this piece of early walling might connect with other similar traces, and so mark the line of the earliest defensive system A (*Annals*, XIX, Pl. XI); but this line is now proved to be discontinuous, and the points examined belong to different but contemporary buildings of E.B.i. It now seems more probable that the

enclosing wall of the E.B. i period is marked by the 'purple' wall of Watzinger descending the slope on the western side: perhaps further evidence will be forthcoming in our future work.]

HOUSES of this period within the confines of the city are seen from the plans reproduced on Pls. XXIII and XXIV to be mere agglomerations of simple squarish rooms, varying in size from 3 to 5 m. roof span, and lacking, so far as they are preserved, in architectural character. Remains of roofing posts were found in Room 100 at level 12.50, and other special features are shown on Pls. XXVI-XXVIII. Domestic architecture was in fact restrained from developing freely by the constant limitation imposed by the city's walls, the effect of which left no scope for expansion, as population increased, except upwards, *i.e.* by added height, as in New York City to-day, and ultimately led to restriction of ground space. A good illustration may be found in our section AB in Strip 5, where the party wall between Rooms 138 and 100 is seen to stand nearly 5 m. high, suggesting an original two- or three-storied building. At the inception of the town wall, against which it abuts, the rooms on either side were designed to be about 4 and 5 m. wide respectively (Pl. XXIII, b), but in the course of time, when the general floor of occupation had risen by 2 m. to our 12 m. level, they were reconstructed on a much smaller scale, about 2 or 3 m. wide respectively (from E. to W.), with a similar reconstruction towards the south, so leaving space for as many rooms again within the same building area.

Below the level of the city wall the house space was even more generous, and in Plan IV (Pl. XXIV, a) may be seen in nos. 161-162 the suggestion of a house and courtyard. At this time, it would seem, a narrow street led northwards between two similar house-systems (nos. 179-174). Taking into consideration the contours of the Tell and the position of Watzinger's 'purple wall' along the western edge, it is possible to picture the north end of the city at this time as laid out generally with two long streets, parallel to the eastern and western main walls, giving access to the houses along the wall on the one hand, and to a double row of houses between them. When the city wall was built from E. to W. across the area in the position shown in our Plans I and II, these two main street-lines, thus obstructed, were turned towards one another (Plan III) and gradually developed into the curving street that served the new system of houses against the wall (Plans II and I), to

be seen in Watzinger's plan¹ (*Jericho*, Taf. II). It is clear that the plan of the city, and details of domestic architecture, were conditioned by the restriction of space, and remained unexpressive. Under such circumstances domestic ornament and decoration also remained unprogressive, an effect in which the prevailing insecurity arising from the danger of fire and enemies, attested by the relatively short life of each floor of occupation, must also have been a considerable factor.

By contrast, when the bottom of the period is reached at our 8 m. level, the system of round and rounded buildings attracts attention (Pls. XXIV, b, and LI, b) and suggests a sense of freedom. Of these we shall speak again; they are on the borderland of an earlier architectural system which in some ways they reflect, and as yet there is no evidence of any enclosing wall at that time. They soon gave way, however, to the more practical style of square room and court, seemingly responding in shape to the conditions and form of the new fortifications.

STRATIFICATION OF THE WALL SYSTEM. The chief interest of the houses lies not so much in their architecture as their floors and stratified contents, and this applies particularly to those abutting upon the city wall which links them all together. A few notes with reference to Pl. XXVI, Section A-B, may be of help.

Room 100 with its superposed floors of occupation compares with Room 109, and both show traces of long and continuous use. Soundings made two years ago had already disclosed its high party wall down to a certain depth, and some type specimens found at that time are included in our Pl. XXXI. The foundations of this wall seem to descend below those of the city rampart. The floor at about 12·60 m. level in Room 100 seems to correspond with that at 13·04 m. in Room 109, for the preserved walls were plastered in both cases, and both contained a similar sprinkling of later pottery. If they were in temporary occupation, the general level at that time must have become much more horizontal than before the main wall was built. A second floor was observed at level 11·51 m., and the original house floor was no doubt near the bottom of the visible foundation stones at about 10·70 m. This contrasts with the lowest floor level of Room 109 which was found at 11·51 m., indicating an original fall of ground amounting to 1·80 m. in the distance which separates them, namely, about 15 m.

1. In this plan the easternmost houses against the main wall, beginning with the small room, are our nos. 109, 99 and 98 respectively.

Though there is so much difference in apparent level between the rooms abutting upon the city wall, there is little doubt about their contemporaneity and the general parallelism of development in their rising floor-levels. This will be illustrated in the next section of this report where the pottery deposits are examined, and it may readily be inferred by a glance at Pls. XXVI ff. The characteristic pottery from the lowest stages of Rooms 109 and 100, and from the intervening rooms, was in fact charted as it came to light, and was found to represent a single phase of a common culture.

Types from Room 109, in which the pottery was plentiful and well stratified, are represented on Pls. XXVII-XXIX; they show that the same culture persisted through several stages in the use of that room, and that, between floor-levels 11.50 m. and 12.90 m. in particular, it is represented almost piece by piece by objects from our Tomb A (*Annals*, XIX). We thus obtain another useful link between city and necropolis; and at the same time secure a clue as to the period of the city wall and the date of its construction. This, falling at a developed phase of E.B.ii, may be estimated tentatively at about 2300 or 2400 B.C. (Cf. Chart on Pl. XLVI.) As already stated, the highest levels of Room 109 were not so reliable; but in Room 100 the development of its several floors (between which were numerous striations), and the corresponding rise in level up the face of its high western wall, argues a very long period during which this culture still predominated, a period which can hardly have been less than three hundred years.

POTTERY OF THE EARLY BRONZE AGE

(PLATES XXVII-XXXIV)

On Pl. XXVII are represented whole or restorable vase-types from the upper levels (10.30 to 12.30 m.) in Strip 2, which, as already explained, is regarded as providing our basic stratification. With each drawing are given the Room or Area number and the recorded level of the find-spot, while the fabrics are described, as throughout, in the schedules opposite the Plate. Nos. 1-9 come from the 11.53 m. floor level of Room 109, or just above. The series from this room, one of the most characteristic deposits of the Main Wall period, is continued in detail on Pls. XXVIII-XXIX; and it will be seen by reference to

the *Annals* (XIX, Pls. II-VIII and XXVII-XXVIII) that it is comparable and almost coterminous with the contents of Tomb A. The analogy is borne out not only by the shapes of vessels and their details,¹ but by such special features as the presence of the highly burnished black and red wares found plentifully at Beisan in levels XI-XII, and well represented at Khirbet-Kerak.

This indication of parallelism is real. The culture represented at Jericho by Tomb A and Room 109, coupled with other types found at approximately the same levels in the city and those which by inference must be attributed to the same period (cf. Pls. XXX-XXXI), is found to have a general distribution throughout the country, as witness the objects from Beisan,² and those which represent the types of Stages 1 and 2 at Megiddo.³ It corresponds with that of level J at Tell Beit Mirsim, classed by Dr. Albright in E.B. iii,⁴ and with other discoveries as yet unpublished. There can be no hesitation in concluding that this culture was general, and it will be seen that it represents a period to which the term E.B. ii can be properly applied.

Tomb group 351 (Pl. XXXIV⁵) falls readily, though perhaps rather late, within this category; and, if only to avoid subdivisions, we would include within the same class of E.B. ii fabrics most of the objects figured on our Pls. XXX-XXXIII, as well as those from levels XIII at Beisan and Stage 3 at Megiddo. (Compare, for example, objects 11, 12, 13, 16, 17 and 22 on Pl. X from level XI, and nos. 2, 5, 7, 13, 16, 17, 18, 19 and 22 on Pl. V from level XIII of the Beisan publication.) It would be possible to subdivide this period, but the culture is one in its essential features, as may be seen by comparing it with what lies above it and below.

Above the E.B. ii deposits thus defined there appears fairly generally the culture represented by the pottery of level H at Tell Beit Mirsim, classed by Dr. Albright as M.B. i. At Beisan this has been found as yet only sparsely on the Tell (cf. *op. cit.*, Pl. X, 9), though present in

1. The two-handled type, Pl. XXVII, 1, appears to be rare: it was found in 1931 at the corresponding level in our first sounding trench on the north side of the main wall (*Annals*, XIX, Pl. I, 3) but it was not recorded in Tomb A, though it is possible that it may have been present among the badly broken specimens. Cf. also *Annals*, XIX, Pl. XXVIII, 6. The second loop handle to our present Pl. XXVII, 3, is also a somewhat doubtful restoration. Cf. *Annals*, XIX, Pl. VI, 1-3, etc.

2. FitzGerald, *The Museum Journal*, XXIV, 1, 1935, Pls. VII-X.

3. Engberg and Shipton, *Chalcolithic and Bronze Age Pottery of Megiddo*. Chart at the end.

4. Albright, *Annals of the American School of Oriental Research*, XIII, p. 98.

5. Described below, p. 163.

the Tomb deposits, as also at Megiddo. At Jericho our records indicate numerous scattered examples over the area now under discussion¹; and just northward, outside the main brick wall, Dr. Watzinger long ago recognised its presence and called it with good insight *Spätkanaanitisch*.² It has been found in various other spots but usually with burials or in unstratified deposits. However, this year we examined the ground below some of the Palace Store-rooms on Spring Hill (nos. 44, 45, 35 and 47 on the Plan, *Annals*, XXI, Pl. XV), and found a nicely stratified deposit at a depth of 3.50 to 4 m. below their floors, with a separated deposit of E.B.A. below. Samples have been recognised by Dr. Albright as technically similar to the H wares of Tell Beit Mirsim. If found possible, this stratum will be examined more widely during the coming season; but it would appear already that the affinities of this pottery in form, with its flat bottoms and lug handles, is with E.B. rather than with the Hyksos type. For this reason it might appropriately be labelled E.B. iii. This is, however, for the moment, beside our point, which is to show reason for the conclusion that the culture represented in particular by Room 109 and Tomb A at Jericho, and in general by the deposits between our levels 10.30 m. and 12.30 m., is in the main homogeneous and continuous, representing a phase readily to be distinguished from those that follow and precede it, but not so readily subdivisible.

About the distinct character of the overlying stratum just discussed there can be no question. Before considering what lies below it let us briefly examine the question of the homogeneity of the pottery of this period as a whole, as represented by the shapes shown in our Pls. XXVII and XXXI, and the fabrics described in the opposing letterpress. The common pottery for the most part is drab in colour and gritty in texture, hand-made but not infrequently wheel-finished (particularly round the neck), and as a rule well baked. Shapes, though exhibiting a considerable variation in each class of vessel, are restricted to a relatively small number of standard models, the main theme of which is usefulness and simplicity, with little evidence of any artistic impulse in the way of experiments to attain elegance in form or beauty in decoration. Finished surfaces, covered with dark red slip and burnished, are, however, quite common on certain types of vase, on

1. *E.g.* in Room 100 at level 10.30 (Strip 5); 101 at 11.54 (5); 103 at 11.65 (4); 109 at 12.40 (2); 113 at 10.80 (3); 116 at 11.60 (3); 119 at 9.76 (5); 121 at 10.01 (6); 122 at 9.61 (5).

2. Sellin and Watzinger, *Jericho*, p. 108 and Figs. 93-109.

some of which the burnishing has been carried out with decorative effect, in simple criss-cross patterns; while another style of finish was the so-called grain-wash. A common and effective decoration was effected, however, rather in the clay itself, by adding a thin band of clay around the neck of certain types of jar or near the rim, and impressing this in somewhat stereotyped fashion with a series of marks or notches, frequently made with the thumb, more rarely in imitation of a rope (cf. Pls. XXVIII and XXXII). Such decoration on the rim itself was rare at this time, though characteristic of an earlier epoch. Painting, on the other hand, if we judge correctly, was decadent and lacked inspiration, being almost confined to the smaller vessels and rather clumsily executed in cross lines of dark colour upon the red surface of the pot, or to broader bands on the inside of dishes. Handles of jugs were strong loops, ample in proportion to the size of the vessel, and reaching high up the neck or to the rim. An exceptional and rather distinctive fashion provided large jars with a loop or 'strap' handle on either side, rather low upon the shoulder. A ledge handle of developed type, however, was more common upon the larger jars, and in miniature was not infrequently added to smaller vessels already provided with a loop.

The LEDGE HANDLE in its various styles is one of the most distinctive features of the Early Bronze Age, and its evolution can be traced continuously through the whole period from an earlier rudimentary original. In the upper levels the most characteristic fashion comprised a strong broad handle boldly notched as with the thumb, the edges of the notches being turned or pushed up and frequently turned over, as seen in nos. 2, 3 and 4 on Pl. XXXV, where a number of standard types and varieties are represented. The completely enveloped type (no. 1) represents a further development, but this is confined to the uppermost levels. The 'pushed up' and 'turned over' varieties occur in our stratified deposits all through the E.B. ii period, from level 10.30 m. in Strip 2, even to well above 12.30 m.; they represent, in fact, the same motive, and such variation as may be seen between them is probably fortuitous or an expression of individual taste. It is, however, curious that where the 'turned over' style ceases in Strip 2 about level 12.00 m., as represented by the Range Chart¹ on Pl. XXXV (no. 2), its place is taken

1. In this chart the black lines represent the range of levels in the stratifications of Strip 2; while the open lines indicate the approximate range of the same types in the other strips adjusted for the slope.

by the 'envelope' handle (no. 1) which seems to carry on the motive. Since, however, all the specimens of class I ('envelope') were found in rooms near the surface at levels where a certain amount of intrusion or disturbance was suspected, it would not be wise to regard this conclusion as definite.¹ None the less, the range of the 'envelope' handle in these deposits agrees with the position assigned to it by the excavations at Beisan, viz. level XI (*op. cit.*, Pl. IX, no. 14), and at Megiddo in Stage I (*op. cit.*, Chart and p. 13).

In all attempts to define the range and period of an individual type a certain amount of accidental overlap at each end is to be anticipated from the very way in which the occupation levels themselves rose in antiquity, each building being usually dovetailed in some way with those above and below it. This observation may explain the appearance of the developed style no. 1 with the older styles nos. 2 and 3, for the typical 'envelope' ledge handle is usually associated with a thin, hard, fine-grit pottery more like that of E.B. iii (otherwise like the class of level H at Tell Beit Mirsim) rather than the softer, more finished wares of E.B. ii and the coarse grit wares associated therewith. But at the lower end of the scale the statistical chart tells its tale without any such ambiguity.

The prevailing fashion of the earlier epoch, which for brevity we call J.E.B. i, shows a different method of embellishing the ledge handle, namely, by a series of small indentations along the edge, made presumably with the finger-tips of the potter. In this process the clay pressed in or upwards was smaller in amount and remained inconspicuous, though it might be turned up accidentally. In the most typical examples the ledge was sufficiently thick to receive the indentations without any other effect than a slight spreading of the edge (Pl. XXXV, 5) above and below. Sometimes the pressure was applied aslant, tending to produce a rope-like pattern. In the very earliest examples (Pl. XXXV, 6) the indentations were carefully and more deeply made, and the clay pressed up was turned over and welded to the ledge in much the same way as on the 'envelope' handles of the latest period. Presumably at that time the conception of the indented ledge handle was new and carried out

1. Specimens are registered from Room 113 at 11.80 and 11.60; from 114 at 11.80; from 116 at 11.20; from 119 at 9.76; and 138 at 10.78. A good example was found with the fragments of a vase of reddish pottery in our sounding below the Palace Store-rooms at 4.00-4.50 depth in an upper E.B. ii context.

with care; familiarity brought about the stereotyped pattern which characterises the period as a whole.

The range of this pattern, as the chart shows, falls almost exactly between 8.30 and 10.40 m. in level, and exhibits little overlap with the more boldly notched design of E.B. ii. The same sequence and range of designs, and relatively small overlap, is illustrated by the excavations at Beisan (level XIV) and at Megiddo (Stage 4). It may thus be concluded that while the ledge handle with various embellishments is characteristic as a whole of the Early Bronze Age in Palestine, its two most familiar styles represent respectively the two main divisions generally recognised in that period, the row of indentations prevailing in the earlier phase (E.B. i) and the pushed up notches in the later (E.B. ii). As already mentioned, notches completely turned over and welded (enveloped) appear latest of all, but we can only guess as yet that they are similarly typical of the phase we would call E.B. iii.

The plain ledge handle, whether upturned and bold or slightly curved, appears early, and in various guises continues a long way up the chart. Various examples are illustrated in our Pl. XXXV (nos. 7-16); but, though we have other records of such varieties, they are not sufficiently numerous to determine their relative ranges independently of computation by strips; and since there is a prospect of checking these results next season, the publication of these conclusions is deferred. The specimens include several familiar as well as some curious varieties, some of which are distinguished not so much by the notches or indentations as by the form of the ledge handle itself. The broad and long ledge handle with gentle undulations, not published here, seems to belong to a relatively late phase.

A rudimentary type of ledge handle (Pl. XXXV, 16) is found in the pre-Bronze Age (our chalcolithic) level, and seems to trace its origin to an elementary knob, doubtless found convenient at first for the suspension of the vessel. A development of the knob gives a knob-ledge, thick and narrow, from a slight modification of which emerges the rudimentary type of our illustration (no. 16). The range of this type is confined to our 7 to 8 m. level, and so to our chalcolithic period. At the same time, however, there is found a well-developed lug handle placed horizontally. This was sometimes quite plain, but as often as not was holed, or nicked along the edge, and sometimes showed both these features. The range of these variations was the same in all cases, and was confined

strictly to the chalcolithic levels. Examples are figured later in our Pls. XLI-XLII. This observation does not gainsay the fact that the standard ledge handle is characteristic of E.B.A. as a whole, and that its indented variety distinguishes the E.B.i phase from E.B.ii.

The POTTERY OF THE LOWER E.B. STRATA (8.30 to 10.30 m.) is less plentiful, and is distinguished from that of the upper levels in a variety of ways. Completed forms from various rooms and levels in Strip 2 are shown on Pl. XXXVI, while characteristic fragments illustrating details of form and decoration are given on Pls. XXXVII and XXXVIII, the latter from other strips but belonging inferentially to the corresponding levels.¹ The most obvious difference lies in the smaller number and variety of shapes, the greater stability of form, and a more careful use of the brush in the decoration of vessels varying in shape and size (cf. nos. 9, 10, 11 and 17), contrasting with the examples from the upper levels. A special feature is the whitened surface of large jars, on which a net-work or ladder pattern is painted in red lines, as in nos. 10 and 11. Burnished pottery is rare, but burnished linear design is carried out with skill on a vessel from as low a level as 9.21 m. (Pl. XXXVI, 19), recalling a specimen from the upper level XI at Beisan (*op. cit.*, IX, 27), but differentiated by its plain ledge handles and apparent absence of a spout. The plain standing jug with high loop handle has seemingly not yet appeared, though no. 3 from level 9.41 may be regarded as a prototype; and a similar observation applies to flat bowls and dishes which attract attention by their monotonous frequency in the later phase (cf. Pls. XXVII and XXXIV); indeed there is a noticeable lack of conventional forms, and a free exhibition of individual ideas. By way of illustration, we may note on Pl. XXXVI the variety of the handles represented: *e.g.* the small lug handles on no. 2 at level 9.50 m., the high and thick lug handles on no. 7 (at 9.45 m.); the high loop handles on no. 9 (9.21 m.); the double handle on no. 8 (level 9.20 m.), hardly distinguishable from the well-known M.B. type, yet certainly belonging to the Lower E.B. stratum; the bold triple handle of no. 16 from the same level, on a spouted jug; and a small divided handle on the shoulder of no. 20, around which also appears a cord decoration. The pillar or thumb handle of no. 14 is also an interesting feature, occurring more

1. The strip nos. are shown below the levels in each case; and the coefficient of adjustment for Strips 3, 4, 5 and 6 at this depth is about +40 cms. per strip: *i.e.* +40 cms. for Strip 3, +80 cms. for Strip 4, etc.

frequently in our Lower E.B. To judge from two of the latest specimens (Pls. XXX, 21, and XXXIII, 13), this feature may have originated, perhaps accidentally, as an unsuccessful spout, since these examples are only thinly or not completely pierced. As a handle it is strong and effective, the hollowed surface at the top giving a good hold to the thumb. Apart from these exceptions, the range of this type on our charts seems to lie in Strip 2 between 8.21 m. and 10.20 m., but in the other strips by computation reaches relatively rather higher to about 10.60 m. There is little doubt that it belongs essentially to the Lower E.B. series.

The very lowest pottery of the Early Bronze Age (that which comes between levels 8.00 m. and 8.50 m. in Strip 2) presents several problems arising from the nature of this stratum in which were the rounded houses (nos. 173-179). These rested on the chalcolithic layer into which their foundations penetrated, resulting in an unavoidable mixing of the pottery fragments. Indeed, as already stated, the foundations of these houses are partly orthostatic, as in reminiscence of the earlier period; but we have already pointed out the resemblance of the brick-work with its open bond to that of a wall outside the N.E. corner, immediately underlying the main wall of E.B. ii, and well above the chalcolithic level. The houses themselves thus seem to belong to the Bronze Age, but the question requires further examination. Pottery from these buildings includes the specimen numbered on Pl. XXXVI, 18, and the type fragments nos. 20, 21, 24 and 26 (indicated by an *r*) on Pl. XXXVII. The last two introduce the snake motive familiar already on fabrics of M.B. ii from the Palace Area (*Annals*, XXI, Pls. XXII, 9; XXV, 20). We take this opportunity of publishing some interesting examples of this motive found at various times in our earlier soundings on the site, nos. 22 and 27-30. The pottery seems to be of an E.B. quality, and the execution of the design resembles examples from Tell Ghassoul.¹

The DEPOSITS of our lower E.B. levels, though not rich in objects other than pottery, contained a variety of cereals. Large pots in Rooms 167 and 168 contained lentils and grape stones. When collecting these specimens the fragments of dried grape skins and short bits of stalk could be plainly seen, but they disintegrated rapidly. In the same vessel were pieces of woven cloth, some of which were saved, and were found to have eleven and twelve warps and woofs respectively to the square centimetre. The material looked like goats' wool, but no expert opinion has been

1. Mallon and Koeppel, *Teleilat Ghassul*, I, 1934, Pl. 52.

received. The identification of the cereals was done by Dr. N. Feinbrun, whose report also includes grapes and probably an almond seed from Room 157 (level 9.00 m.); grapes from Room 159, lentils from Room 158, and barley from Room 127, c. 10.50. A specimen of metal from Room 121 (level 10.42 m.), analysed by Professor C. O. Bannister, proves to be essentially of copper, and though a certain mixture of tin was observed, this combination was natural. His report says: 'The sample consists of a small spherical mass of red oxide of copper surrounded by a fairly thin green covering all over. The inside portion (red) consists of cupreous oxide (Cu_2O), containing small quantities of lead (0.1 per cent.), tin (0.24 per cent.), and traces of nickel, magnesium, silver and titanicum. The outside green portion consists of basic carbonate of copper, containing the impurities mentioned above, tin being higher, viz. 0.53 per cent., arsenic and titanicum somewhat lower, and the other impurities about the same. The whole appearance of the sample suggests that it was originally a small nodule of copper containing some tin and other impurities, and that this has corroded during the ages, with the results given above.'

Other finds not illustrated in our plates comprise a number of interesting objects, chiefly bone or stone, the full descriptions of which must be deferred. Among them may be noted:—

Three mace heads of limestone found in Room 154 at level 10.67 m. (2), Room 107 at level 10.80 m. (3), and Room 244 at level 8.44 m. (6); a stone dish on three short legs, from Room 185, level 7.60 m.; various stone pestles and mortars from Rooms 131, 133 and 144 (9.64 m.), and whorls from Rooms 108 (level 7.59 m.), 156 (9.20 m.), 137 (10.78 m.), etc.; several large Cananean flint scrapers '*en éventail*' were found with the pottery deposits of Room 167. Bone points and beads came from Room 109 (11.13 m.) and Room 159 (9.35 m.), a small Astarte clay figure from Room 131, level 11.58 m., was possibly of M.B. or later date, being found near the surface. A carved bone fragment came from Room 140, level 10.50 m.

TOMBS OF E.B.A. Considerable search was made, over a wider area than formerly, for further tombs, but with only limited success. One grave, no. 351, containing a Late E.B. ii deposit, is described below. A second, no. 352, found in a banana grove, was of the familiar shaft and chamber type of M.B. ii, and though well stocked, it added little to our corpus of that period. A small group of open graves to the SW. of the

city, though disturbed and in some cases empty, provided a very important series of fragments Chalcolithic in style and decoration. These will be found illustrated on Pl. XLIII.

Tomb 351 was a large open grave, 4.70 m. wide from N. to S. and 2.50 m. from E. to W. It proved to be 1.30 m. deep, and was entered by means of two steps hewn in the rock. A large stone occupied a central position in the tomb, thus dividing it roughly into two portions, and suggesting that at one time it had served to support a roof, as in *Tomb A* (1931). The southern portion contained sherds near the surface, but otherwise proved to be devoid of pottery. Layer *a* (from surface to -80 cm.) contained only two skeletons and a bronze dagger (Pl. XXXIV, 41) in the northern portion, and one jug in the southern chamber near the surface (Pl. XXXIV, 1). The dagger seems to belong to the secondary (intrusive) interments next mentioned.

The pottery, shown on Pl. XXXIV (nos. 1-40), was mostly Late E.B. in character and fabric, but in layer *e* there came to light, beside and north of the central stone, four M.B. pots, which may have been placed there at the same time as the interments and dagger of layer *a*. The pots are shown as nos. 42, 45, 46 and 47 on Pl. XXXIV. Layer *b* (-80 cm. to -105 cm.) contained various flat-bottomed dishes and small jugs, including one with two ledge handles (*b*, 8). There were eleven skulls at this level, and it is interesting to note that of these, five female skulls were grouped round one male.

Layer *c* (-105 cm. to -130 cm.) also contained numerous dishes, small jugs and ten skulls. Layer *d* (-130 cm. to -150 cm.) contained only two objects; and as before mentioned, layer *e* (-150 cm. to 780 cm.) contained the intrusive M.B. objects. Tombs 353 and 354 proved to be empty, small grotto-like tombs, the latter having two roughly divided chambers containing some E.B.A. sherds.

THE CHALCOLITHIC AND NEOLITHIC LEVELS

(PLATES XXV, XXXIX-XLV, LI-LIX)

Introductory Note

The CHALCOLITHIC STRATUM, which lies in Strip 2 generally between the 7 m. and 8 m. level, is characterised by its orthostatic stone walls and its numerous grain pits. The round or rounded houses just below

the 8 m. level belong only doubtfully to this stratum, though intruding well within it. Since no complete buildings were uncovered, and wider examination of this level is contemplated, we limit our present account to a few notes as to the levels which define the stratification.

The orthostatic walling between Areas 186 and 188, seen in Pl. XLVIII, c, lying in Strip 1, reached from level 8.06 to 8.40 m., and near it (in Strip 2) may be seen a round floor at 8.30 m. In Area 188 (Strip 2), which provided the most typical deposits of this age, the ground surface in which most of the pits were dug was reached at level 7.71 m., and the bottoms of two typical pits reached down to 7.27 m. and 6.68 m. respectively.

'Cananean' flints, which had been registered all through the Early Bronze Age levels, were traced through this stratum down to level 7.30 m. In the neighbouring Area 189 they were found as low as 7.00 m., at which level they gave way to the 'Neo-Tahunian' series.¹ Under Area 188 this change did not become visible until the 6.40 m. level was reached, so that, allowing 30 cm. for the depth of the deposit so registered, no clear line can be drawn between the chalcolithic and neolithic strata in the levels between 7.30 m. and 6.70 m., and the pottery therefrom discloses a certain intermingling of both classes. This comment applies to a number of the vases figured in the lower part of Pl. XXXIX, where nos. 12 and 15 only are evidently chalcolithic.

Since the flint associations have been used largely in the classification of the pottery of the lowest levels, it will be convenient to give a summary of the lowest and uppermost registers of the 'Cananean' and 'Neo-Tahunian' flint types. These are indicated respectively in the following schedule by C.F. and N.T.F. respectively :—

Area 185 (Sq. 2, b). Pottery registered from 7.94 to 7.09 m.

C.F. down to 7.00 m. ; N.T.F. down from same level.

188 (Sq. 2, c). Pottery registered from 8.29 to 7.40 m.

C.F. down to 7.30 m. ; N.T.F., see 196.

190 (Sq. 2, b). Pottery from 7.20 to 6.90 m.

C.F., see 185 ; N.T.F. at 7.00 m.

196 (Sq. 2/1, c). Pottery from 6.49 to 6.04 m.

C.F., see 188 ; N.T.F. from 6.40 m.

1. The expression 'Neo-Tahunian' is employed here tentatively to connote the pre-Cananean types described below.

Area 198 (Sq. 2, b). Pottery at 6.07 m.

C.F., see 185 ; N.T.F. at 6.80 m., see also 190.

202 (Sq. 2, b, c). Pottery at 7.09 m.

C.F., see 185 and 188 ; N.T.F. at 6.40 m., see also 198.

The areas in Strip 2 thus show the lowest level of Cananean flints to lie between 7.00 m. and 7.30 m. ; and the highest appearance of Neo-Tahunian flints between 6.80 m. and 7.00 m. This criterion is useful, and by computation may be extended to strips lying to the east. Thus, continuing the schedule, from Areas in Strip 3, we find :—

184 (Sq. 3, a). Pottery to 6.66 m.

C.F. to 7.00 m. ; N.T.F. at 6.65 m., see also 201.

187 (Sq. 3/4, b, Round House). Pottery at 7.30 m.

C.F. to 7.30 m.

195 (Sq. 3, a). Pottery at *c.* 5.50 m.

C.F., see 184 ; N.T.F. from 6.80 m.

199 (Sq. 3, c, orthostats). Pottery from 6.45 to 5.96 m.

C.F. nil ; N.T.F. from 6.40 m.

201 (Sq. 3, b). Pottery from 6.25 to 5.54 m.

C.F. nil ; N.T.F. at 6.50 m.

The areas in Strip 3 show the lowest appearances of Cananean flints between 7.00 m. and 7.30 m., and the highest appearance of Neo-Tahunian types between 6.65 m. and 6.80 m. The result is in general agreement with that obtained in Strip 2, so that (subject to local exceptions as already indicated at the bottom of Area 188) a broad theoretical line can be drawn between the chalcolithic and neolithic strata in Strip 2, between the 7.00 m. and 7.30 m. levels.

As will be seen from the Sections (Pl. XXVI), the fall of ground eastward at this depth is only about 1 in 10 ; while that in the separate strips (owing to the larger areas occupied by floors) is almost negligible, notwithstanding the fact that at the top of the chalcolithic stratum it attains its maximum of about 1 in 6. This conclusion, satisfactory so far as it goes, does not preclude certain pitfalls, *e.g.* in the sudden dip in area 204, on a slope of 1 in 2, and one or two other disturbing irregularities in the lowest strata ; it does none the less provide definite assistance in appraising the character of the pottery from other areas in the lowest strata. This was, in fact, done in the first instance on technical grounds by Professor Droop independently of the flint levels, and together

we have checked his conclusions with the help of this factor. With the exception of minor modifications, and doubtful borderline cases, his first conclusions stand, and we are both satisfied that a neolithic pottery stratum has been found, and also that its elements can be theoretically sorted out as indicated in our Pls. XXXIX-XLV, and as represented photographically by a small selection on Pl. LV.

The TOMBS of the chalcolithic period were apparently open graves without chambers, hardly deep or regular enough to be called shaft tombs. A typical tomb, no. 356, varied in width from 2.40 to 1.30 m., and was 1.70 m. deep, being cut out irregularly from the gravel and soft rock. Several of such were found in a group, to the south-west of the city, but they were in a thoroughly disturbed condition, so that only three gave reliable indications of their period. As it proved, the pottery fragments from these were among the most instructive of the series, and they are reproduced on Pl. XLIII, with descriptions opposite.

The NEOLITHIC PERIOD, represented by the next $6\frac{1}{2}$ m. of depth, is divisible into two broad phases by the presence of pottery above the 5 m. level, *i.e.* in a stratum about $1\frac{1}{2}$ or 2 m. thick, but not below. This pottery is described by Professor Droop in the next section of this report.

The statues (illustrated on Pls. LII and LIII) were discovered below the highest level of the 'Neo-Tahunian' flints in their respective areas (190 and 195); they also belong to the pottery levels, though no pottery was actually associated with them. Two groups of statues were found, and though the bodies were very fragmentary, in each case a man, woman and a child seem to form the theme. From restorations skilfully effected by the Palestine Museum in Jerusalem, it appears that the male figure in each case was much taller than the others, in fact about life size, while the infant was quite small. The limbs of the larger figures show considerable sense of movement, and in general the modelling is by no means crude, the muscles and other details being worked out with a certain freedom and without undue exaggeration. The clay surface is carefully smoothed and treated with a drab or reddish pigment. In the better group, no. 195 (Pl. LII, b), the clay was unbaked, though no doubt sun-dried. It was therefore a matter for congratulation to find, when the head was finally lifted, that the face was so well preserved (Pl. LIII). The hair and beard were represented by reddish-brown radiating lines, and the eyes were fashioned of selected sea-shells which

were presumably inserted from behind, as the clay which represents the eyelids shows no signs of any join.

The other group (190, Pl. LII, a), though generally similar, was more fragmentary : it rested upon a hearth of loose stones and so was partly baked, but whether placed there intentionally for that purpose is not certain. Among the pieces is a small foot with modelled toes. These and other anatomical details, such as the woman's breasts, are copied with simple realism, and there is no visible suggestion of anything phallic or sexual in motive or execution. This group was found 40 cms. above floor level in a small chamber to the north of house-room 202, which looks as though it had been reserved for the household hearth (cf. Pl. LI, b).

The construction and preservation of the neolithic house was perhaps the most remarkable feature of the whole deposit. No bricks were used, only mud in slabs or bulk between finished faces.¹ In plan, the house 202 (Pl. XXV) shows a room (6×4 m.) with an ante-chamber separated by a wall and a raised sill, and in the corner a grain bin. The outer wall was wavy in plan, following the contour of its foundation stones, and the doorway led out between this wall and that of the small room behind, in which were the fire-stones and statues.

The walls and floors were covered with plaster, carefully smoothed, finished with red colouring, and burnished. The burnishing stones were found, and they also were smoothed and greatly worn with use : evidently the burnishing process was repeated from time to time. The floors rested on a prepared bed of small stones mixed with lime, which was apparently unslaked, but contained a small proportion of earth and other ingredients. The surface, presumably by wetting with the paint and constant polishing, had formed a coherent skin, varying from 2 to 5 mm. in thickness.

One such house (208, Plate LII, c), having a ground plan about 5 by 6 m., was found to have been reconstructed, and its floor level raised, no less than six times, and these seven superposed floors were all intact (cf. the section on Pl. XXVI). In the topmost and third floors (at levels 4·40 m. and 3·20 m. respectively) were found post-holes in good preservation and still plastered around the base. The roof-span of

1. Exceptionally the outline of a few falling bricks suggested itself in one of the lowest levels, their sizes being apparently 33×11 cms. On this floor were found fragments of hard mud bearing the impress of reeds, clearly from the roof. The floor itself was painted in this case dark brown.

such a house-area was probably more than the local timber would cover ; indeed, later houses of the Bronze Age were usually less than 4 m. wide. Above and below the uppermost floor respectively were found two interments, one of a child (at level 5.00 m.), the other of an adult (at level 4.20 m.) ; and as the floors above and below the latter (at levels 4.40 m. and 3.85 m.) were unbroken, it would seem to have been a case of human sacrifice.

Between all these superposed floors deposits of flint implements and other stone objects lay in sealed strata. Happily these floors and the flint deposits were seen *in situ* by a number of specialists, and Miss Joan Crowfoot was able to join us at this stage and undertake the classification of the flint implements. Her report appears below : ' This industry,' she writes, ' has more affinities with that described by M. Neuville as Tahunian II than with any other so far known. It differs, however, from it in the scarcity of picks, the absence of chisels, in the fine denticulation and absence of flat retouch on the sickle blades, and in the absence of the blade with *l'arête centrale enlevée*.'

There seems to be no doubt that we are in the presence of a distinctive culture of the neolithic period. Whether it will be classed finally as Tahunian II is a matter for experts ; meanwhile, as the Tahunian specimens are surface finds, and there are so many dissimilarities, we propose the more descriptive title ' Neo-Tahunian.'

The underlying industry, which was associated with three levels, but not laid floors, of occupation, was of a microlithic character. Miss Crowfoot reports that it is not possible to place it exactly, but it might belong either to Natufian IV or Tahunian I. In either case the position of the main deposit in the Stone Age sequence is secured.

As further work in these levels is contemplated, it seems preferable not to burden this preliminary note with descriptions of the miscellaneous finds, such as the stone utensils and vessels and other smaller objects ; but to give priority to the reports of Professor Droop upon the pottery, and of Miss Crowfoot upon the flint industry, which establish the unique character of this prehistoric culture.

VIII. THE POTTERY FROM THE CHALCOLITHIC AND NEOLITHIC LEVELS

BY J. P. DROOP

(PLATES XXXVIII, XL-XLII, XLIV-XLVI, LV)

It will not be possible to give a real description of the pottery from the lower levels until further exploration has produced more material and thrown more light on the conditions of deposit.

There is one fact which is hard to explain at present. Floors which yielded no pottery at all underlay the levels at which the lowest sherds were found. Yet these lowest sherds do not give the impression of being the result of first efforts at practising the ceramic art.

The pottery here discussed lay between the levels 8.10 m. and 4.61 m. above the absolute 0 of the excavations.

The distribution was rather irregular, so that at present it is not possible to speak very positively about it.

But the wares can be divided into the following classes:—

Wares showing burnish:

(a) Monochrome.

(b) Ware with dark designs on a lighter ground.

Wares without burnish:

(c) Ware with designs in dark matt paint on a lighter well-smoothed surface.

(d) Ware covered with a matt red paint, sometimes with unpainted bands with incised ornament.

(e) Large coarse vessels sometimes with a buff slip; mostly undecorated, but sometimes with incised ornament.

(f) Coarse ware with washy red paint thinning to orange applied in streaky, splotchy designs.

(g) Ware covered with a red glaze paint more or less lustrous and easily flaking off.

(h) Ware with linear designs in thin lines of red-brown matt paint on a hard not well-smoothed buff clay.

(i) Monochrome ware covered with red-brown matt paint.

There are besides two sherds each unique in these surroundings: the one part of a large vessel in coarse red clay with what may be de-

scribed as a 'rustic' or 'rough-cast' surface; the other part of a small vessel covered with a matt red paint on which a lattice pattern has been drawn with a burnishing tool.

The study of this set of sherds leaves a strong impression that the burnished wares, *a* and *b*, are neolithic in character, and that the wares labelled *c* and *d* are too much akin to be dissociated from them.

It is not easy to distinguish any development in the large coarse ware, *e*, which is indeed of a rather mixed character, and it is difficult to put into words the basis of any subdivision. But about one-third of the sherds examined leave an impression of seniority.

On the other hand the four wares (*f*, *g*, *h* and *i*) appear to be later in quality and may well belong to the chalcolithic age.

On general principles little weight should be given to such impressions, if unsupported by stratification. And of course, if the stratification tells a plain story, there is no place for them. Here the stratification is not so plain that we can do without them, yet we are so far fortunate that these impressions do receive a certain amount of support from the positions in which the sherds were found. Although it is true that of the twenty decorated burnished sherds, five lay in the upper deposits between 8.00 m. and 7.50 m., and only three lay below 6.00 m., yet none of the plain burnished, which is closely connected with the decorated burnished in fabric, was found above 7.10 m., and it occurred down to 4.60 m. On the other hand only two sherds out of the classes *f*, *g*, *h* and *i* were found below the level of 6.30 m. Moreover the levels of the older looking among the coarse ware, *e*, are such as in most cases to bring them below the upper limit of the neolithic flints, and to justify their association with these.

When, indeed, we consider that the tale of the flints is that the top of the neolithic strata came at about 7.00 m. level, if we admit a reasonable amount of overlapping—none of the deposits being sealed—we may say that the level at which the sherds lay gives some corroboration of the impression made by the nature of the wares.

Of the coarse undecorated ware, *e*, the specimens with incised ornament lay mostly high. In view of this fact it is not possible to say more of the remarkable examples shown in Pls. XLI, 28, XLII, 34, and XLV, 35, than that they came from the neolithic levels.

As a rule the clay is of a deep buff tint, often fired to red on the surface, with a large admixture of grey or white grit.

Some sherds among the early ones bear the imprint of straws or grasses, suggesting that a stuffing of grass or straw may have been used to support the walls of the vase before firing (Pl. LV).

Types of rims and lugs from the neolithic levels are seen on Pl. XLV, and from the chalcolithic on Pls. XL, XLI and XLII.

Of the burnished ware the monochrome sherds (*a*) have a wash of red or brown pigment which has been roughly burnished. In most cases the surface is uneven, so that the burnish has not taken effect in the hollows. In many cases only a trace of the burnish remains, and it may well be that the group *d* are but sherds on which the destructive processes of time have gone one step further. The ware was found at all levels between 4.60 m. and 7.10 m., but, except for one piece at 8.10 m., does not appear above 7.10 m. The inner sides of closed or small-mouthed vessels are well smoothed, while the open vessels are usually burnished inside as well as out. The colour varies from a deep red on most pieces to a light brown. The clay is buff, often with a pinkish tinge, fine and hard-baked. The vessels are small: bowls or jug-like vessels with a high neck rising from a small belly with vertical handles (Pl. XLVI, 1-12).

The twenty sherds with a dark on light decoration in burnished paint, *b*, are in fabric closely connected with the monochrome burnished ware. The smooth surface much resembles the unburnished insides of the plain ware, and the fine clay is usually the same. On four sherds where the colour of the clay is red, grey or deep yellow, a buff slip has been applied to better the contrast with a dark decoration. The paint varies from a dull red with a touch of pink in it (3 pieces) through red-brown (1 piece), light brown (3 pieces), to chocolate. Seven pieces show two colours—that is to say, the designs have a darker border (Pl. XLIV, 9, 10, 12, 13, 19, 20 and 22). One piece indeed is remarkable in that in part of its decoration a central band of a rather lighter brown is burnished, while the border (and indeed all the pattern on another part of the vase) is in a chocolate pigment unburnished (Pl. XLIV, 22).

Of the designs it is not possible to speak, the illustrations (Pls. XLIV and LV) must stand alone. Unfortunately the sherd showing the largest portion of a pattern (Pl. XLIV, 7) was a casual find of 1931. But of its identity with the ware under discussion there is no doubt.

The only forms of which the sherds speak are a vessel with small belly and cylindrical neck (Pl. XLIV, 10), a hole-mouthed jar (Pl. XLIV,

21, like the chalcolithic form, Pl. XL, 29), and a wide-open dish (Pl. XLIV, 22). The burnish was applied with great skill to the paint alone, leaving the ground well-smoothed but without burnish.

With this burnished ware, *b*, must be classed the two sherds identical in fabric except that apparently the paint of the design had no burnish, *c*.

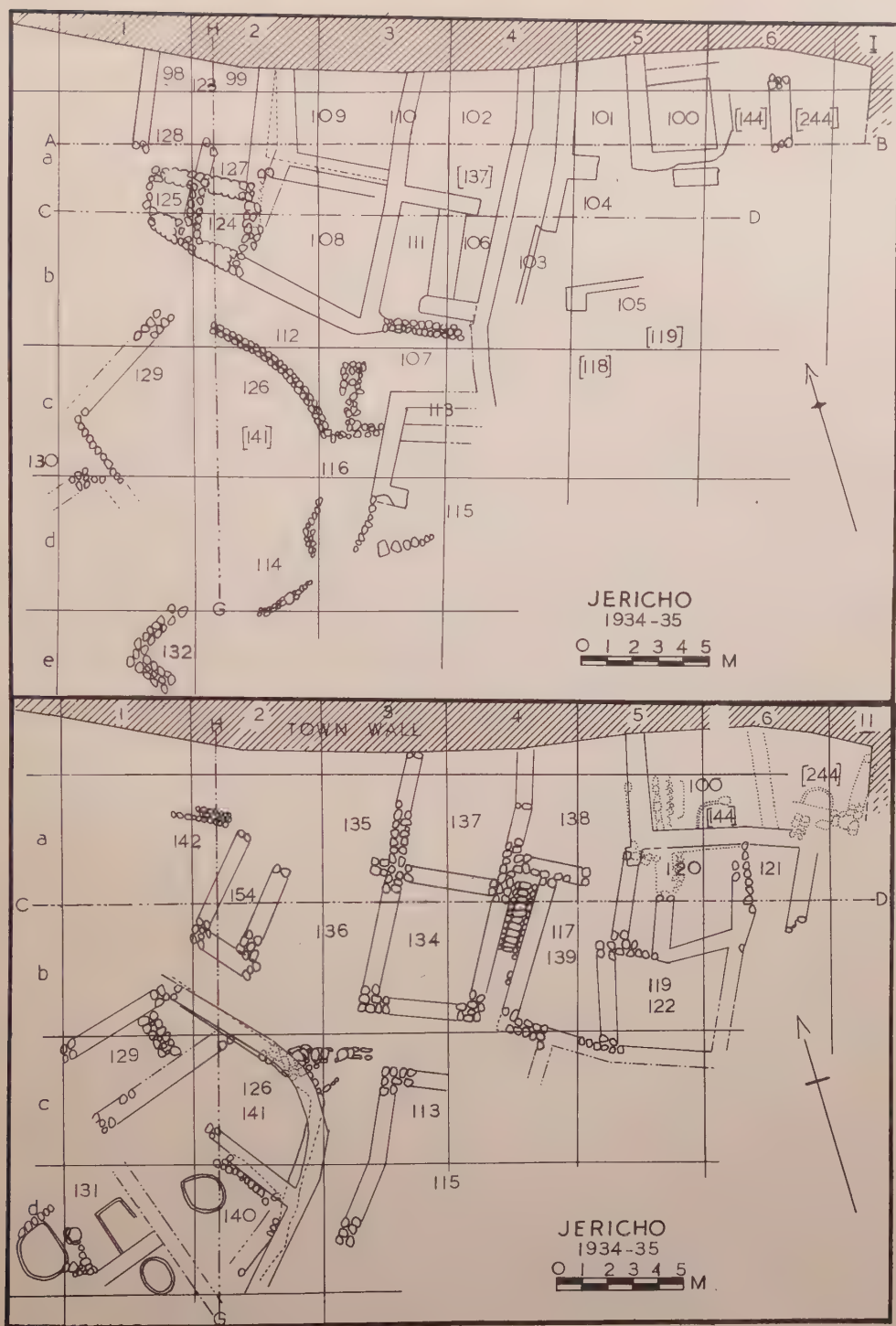
It has been suggested that there are resemblances between these wares and the neolithic wares of Thessaly. Thessaly II, for instance, has been spoken of in connection with the sherds with chocolate paint, more especially in connection with that shown on Pl. XLIV, 22. It does not appear, however, that either the plain burnished or the decorated ware bears any close resemblance to what might be called the corresponding Thessalian wares, though they may be said to have a general resemblance—to be more like them, for instance, than they are like the Cretan neolithic.

The best of the plain burnished wares does not approach in excellence the best Thessalian monochrome burnished (Thessaly A, 1, according to the Wace and Thompson classification), and generally in the red pigment of Jericho there is a bluer tinge. But some of the best pieces are quite like the coarser Thessalian A, 1.

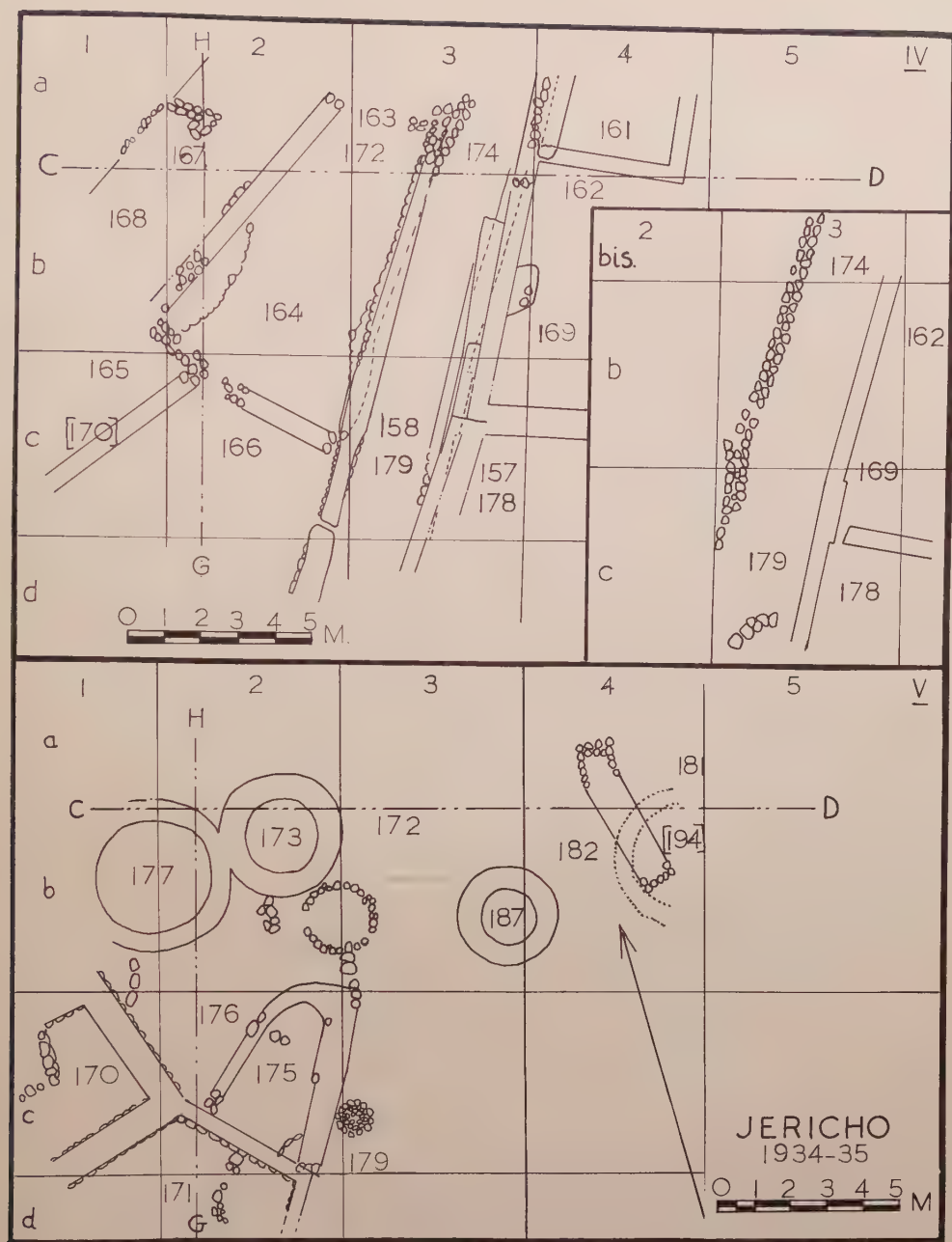
The wares with painted designs on buff do not bear any close resemblance to Dhimini ware, though the one does bring the other to mind. Speaking generally, the Jericho fabric is not so good. The pieces are too small and too few to allow one to speak of the designs. Yet this may be said that they do not show the patterns most characteristic of Dhimini ware. Nor do the few red on white sherds show patterns characteristic of the red on white of Thessaly I. One sherd with a design in red on yellow buff (Pl. XLIV, 8) is, however, almost indistinguishable from red on white from Sesklo, a site where the usual Thessalian slip is not always found when the colour of the clay does not make it necessary.

The group *d*, which shows a covering wash of unburnished matt red, would seem to have close affinity with the burnished wares. As far as the shapes can be judged they were in the same class. Moreover, two sherds link the two classes, one showing burnish on the outside, while the inside has a matt red-brown wash, and the other has on the inner rim a buff slip very similar in finish to the buff slip on some of the dark on light burnished ware.

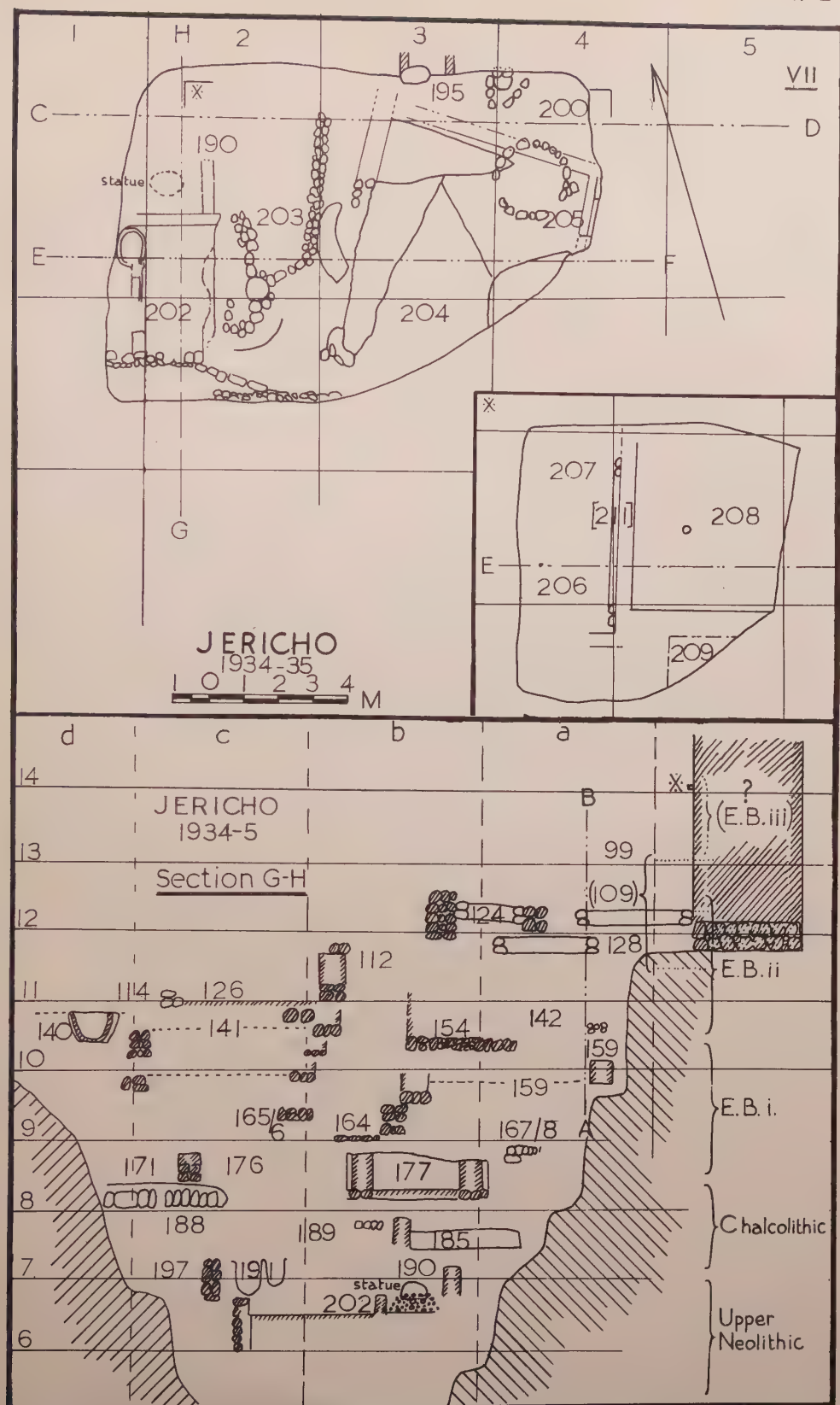
Of the thirteen sherds that constitute this group six were below 6.00 m., one being at 4.65 m., and one only was as high as 7.50 m. Six



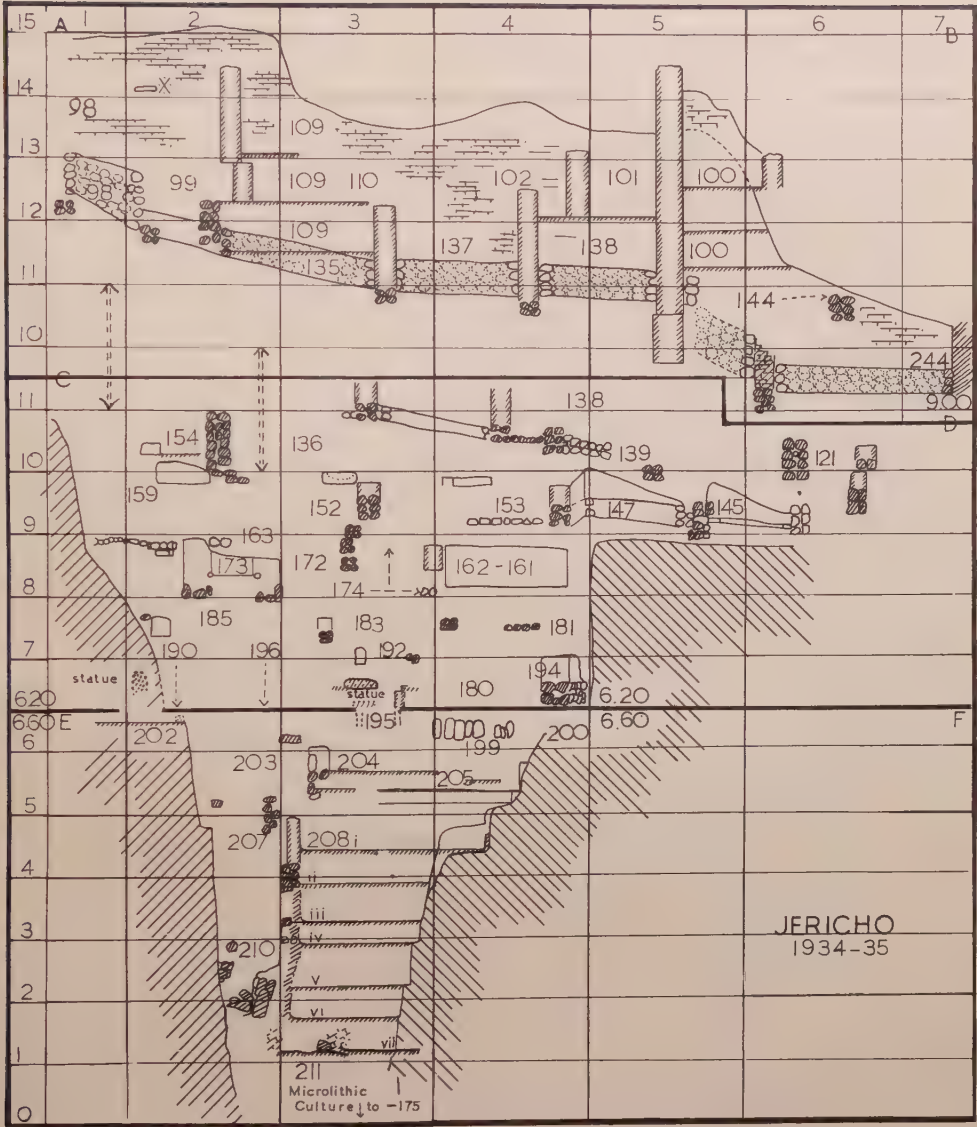
JERICHO, 1935. PLANS OF THE TWO UPPERMOST EXCAVATED LEVELS, INVOLVING THE TOWN-WALL
 SYSTEM.



JERICO. 1935 PLAN OF TWO LOWER E.B. LEVELS. INCLUDING THE LOWEST (ROUND HOUSE) SYSTEM



JERICHO, 1935 PLAN OF UPPER NEOLITHIC FLOORS. b. SECTION ON G-H. *BUILDERS' MARK.



JERICHO. 1935 SECTIONS A-B, C-D, E-F. *BUILDERS FACING STONE.

JERICHO, 1935.

PLATE XXVII. POTTERY FROM THE UPPER E.B. LEVELS IN STRIP 2.

- | | | |
|-----|---------------|--|
| No. | | |
| 1. | Cat. No. 314. | Juglet; drab ware; few fine grits; surface worn; reddish slip. P.M.J.109. |
| 2. | Cat. No. 425. | Juglet; lt. brick ware; upper half red bnd. horiz.; lower half red bnd. vert. 109. |
| 3. | Cat. No. 424. | Bowl; brick ware; cream slip ext. bnd.; red slip above shoulder. P.M.J.109. |
| 4. | Cat. No. 315. | Jug; lt. brick ware; grey core; fine grits; reddish slip; bnd. ext. 109. |
| 5. | Cat. No. 317. | Dish; lt. brick ware; coarse grits; wet-sm. A.109. |
| 6. | | Dish; lt. brick ware; slip-sm. 109. |
| 7. | Cat. No. 426. | Bowl; drab ware; partly grey; red slip-sm. bnd.; lustrous black in parts. 109. |
| 8. | Cat. No. 423. | Dish; lt. brick ware; fine grits; wet-sm. L.109. |
| 9. | Cat. No. 316. | Dish; brick ware; few coarse grits; finely wet-sm. A.109. |
| 10. | Cat. No. 338. | Jar; drab ware; wet-sm. 135. |
| 11. | Cat. No. 337. | Jug; lt. brick ware; slip-sm.; traces of orange-brown dec. L.135. |
| 12. | Cat. No. 350. | Jug; brick ware; red slip-sm.; irregularly bnd. ext. H.M.G.142. |
| 13. | Cat. No. 349. | Jug; lt. brick ware; red slip-sm. ext. L.141. |
| 14. | Cat. No. 323. | Jar; brick ware; wet-sm. 126. |
| 15. | Cat. No. 344. | Jar; lt. brick ware; brown slip-sm.; lower part has white slip. 401. |
| 16. | Cat. No. 339. | Juglet; brick ware; brown slip-sm.; bnd. ext. 114. |
| 17. | | Jug; lt. brick ware; wet-sm. 140. |
| 18. | Cat. No. 340. | Jug; lt. brick ware; slip-sm. H.M.G.140. |
| 19. | Cat. No. 342. | Juglet; brick ware; wet-sm. 140. |
| 20. | Cat. No. 440. | Jar; brick ware; wet-sm.; ledge handles with two notches each. P.M.J.140. |
| 21. | Cat. No. 345. | Jug; coarse grey ware; thick; traces red slip. L.140. |
| 22. | | Bowl; greyish-brown ware; wet-sm. 140. |
| 23. | Cat. No. 346. | Jug; red brick ware; red slip-sm; dull; vert. bnd. L.140. |
| 24. | | Jug; lt. grey ware; brown slip-sm; vert. bnd. ext.; scale as 25; collar. 140. |
| 25. | | Jar; brick ware; wet-sm.; collar round neck. 113. |

Contractions used in the following schedules.

wh.m. = wheel made.	ext. = exterior.	A. = Aberdeen,
hand m. = hand made.	lt. = light.	M. = Melbourne.
wet-sm. = wet-smoothed.	dec. = decoration.	L = Musées du Louvre, Paris.
vert. = vertical.	bnd. = burnished.	H.M.G. = Hunterian Museum, Glasgow.
horiz. = horizontal.	h.m. = hole mouthed	
int. = interior.	P.M.J. = Palestine Museum, Jerusalem.	

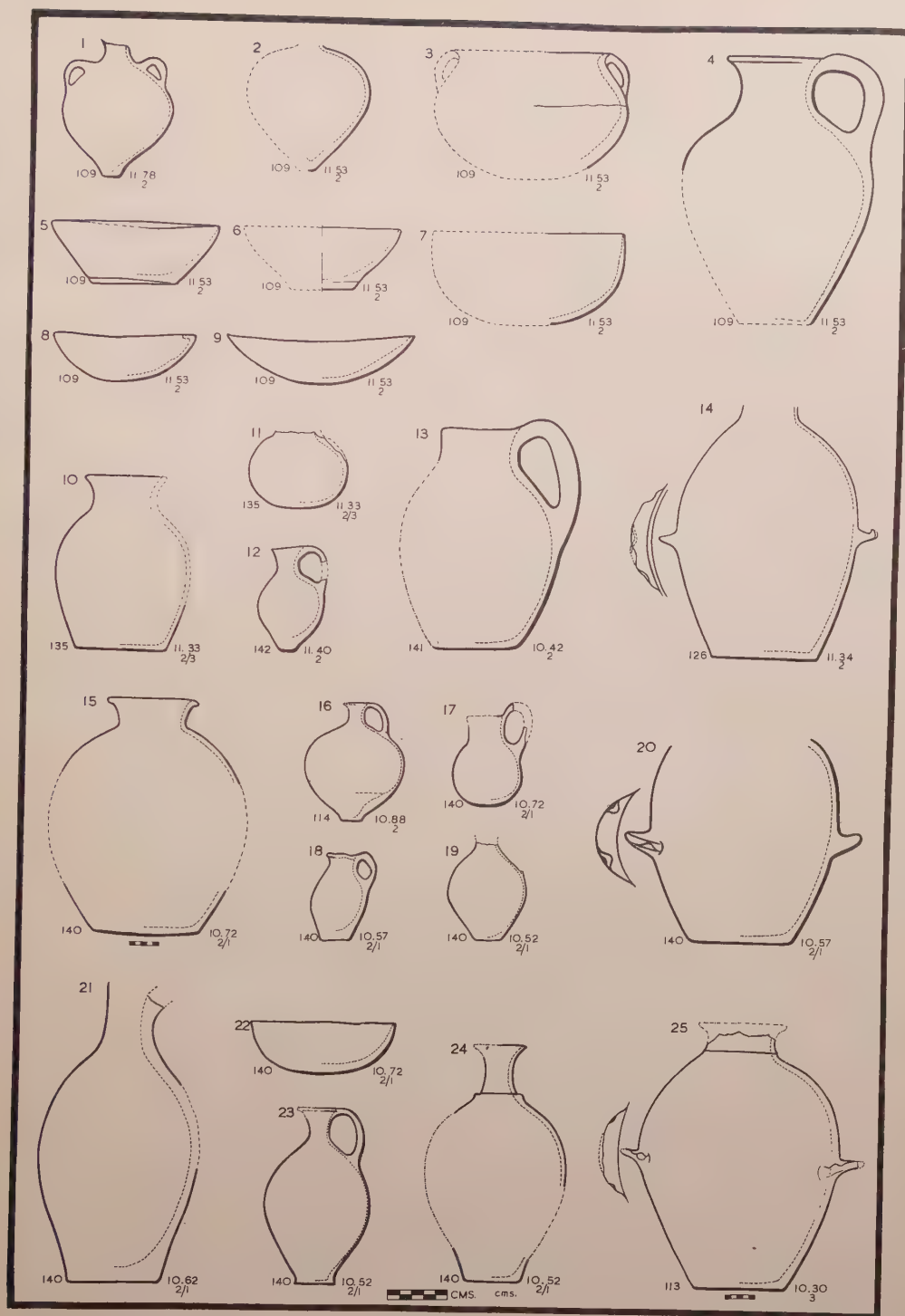
The schedules are as follows:

Number of object on Plate; official serial number; description of object; present location; provenance.

The scale at the foot of each Plate refers to all objects on that Plate unless shown otherwise.

The number at the left base of each drawing refers to the room or area in which it was found.

The numbers at the right base of each drawing give the field recorded level with Strip number underneath.



JERICHO, 1935. POTTERY FROM THE UPPER E.B. LEVELS MAINLY IN STRIP 2. E.B. II.

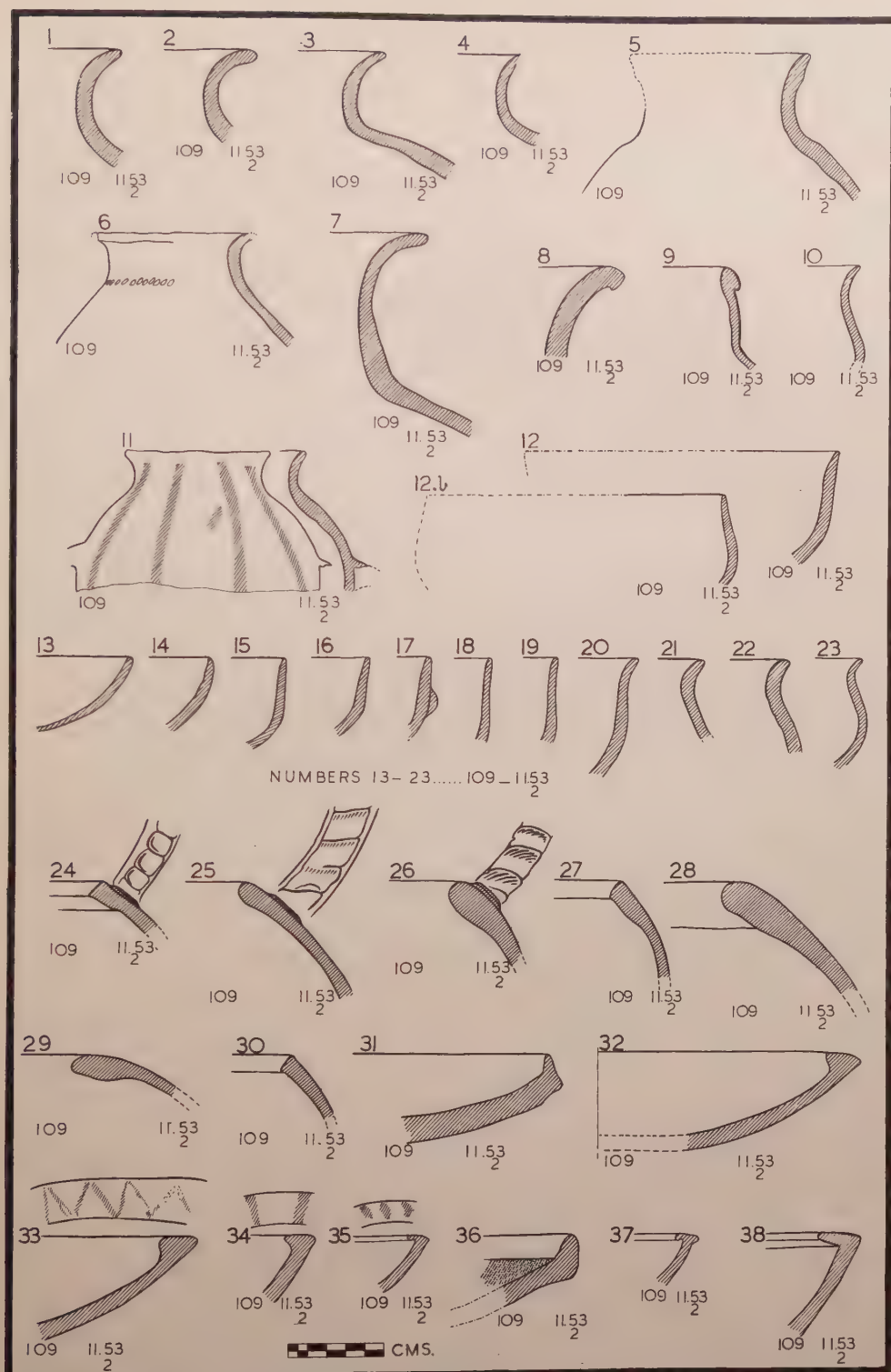
ERIC P. 1982

JERICHO, 1935.

PLATE XXVIII. RIM FRAGMENTS FROM THE 11 METRE LEVEL IN ROOM 109.

No.

1. Frag. rim; brick ware; slip-sm.
2. Frag. rim; brick ware; creamy slip ext. and just inside rim.
3. Frag. rim; lt. brick ware; slip-sm. ext. and just inside rim.
4. Frag. neck; brick ware; slip-sm. ext. and just inside rim.
6. Upper part of jar; brick ware; wet-sm.; notched dec. around neck
7. Frag. rim; brick ware; slip-sm.
8. Frag. rim; brick ware; grey core; wet-sm.; traces white slip ext.
9. Frag. neck; red brick ware; cream slip ext. and just inside rim.
11. Part of jar; brick ware; wet-sm.; dec. red painted lines.
12. Frag. bowl; drab ware; brown horiz. bnd. ext.; reddish horiz. bnd. int.
- 12.b. Frag. bowl; lustrous reddish brown int. and ext. for 1 cm., then lustrous black.
13. Frag. dish; lt. brick ware; red slip-sm. int.; wet-sm. and horiz. shaved ext.
14. Frag. dish; lt. brick ware; rough surfaces; wet-sm.
15. Frag. bowl; lt. brick ware; brown slip-sm. ext. and int.; horiz. bnd.
16. Frag. bowl; drab ware; brownish red slip; horizontal bnd.
17. Frag. bowl; knob handle; grey-red slip, dull horiz. bnd. int.; red and black horiz. bnd. ext.
18. Frag. bowl; brick ware; lt. red lustrous surface.
19. Frag. bowl; lt. brick ware; fine grits; reddish-brown and black lustre.
20. Frag. bowl; brick ware; red slip-sm.; horiz. bnd. ext. and int.
21. Frag. rim; brick ware; slip-sm. ext. and just inside rim.
22. Frag. rim; reddish brick ware; slip-sm. ext. and just inside rim.
23. Frag. bowl; greyish ware; dark grey slip-sm.; horiz. bnd. ext. and int.
24. Frag. h.m. pot; grits; wet-sm.; well finished; raised band dec. finger impressions.
25. Frag. h.m. pot; brick ware; wet-sm.; raised band dec. finger impressions.
26. Frag. rim; lt. brick ware; wet-sm.; well finished; raised band dec.
29. Frag. h.m. pot; grits; wet-sm.; smoke blackened.
30. Frag. h.m. pot; brick ware; slip-sm.
31. Frag. dish; lt. brick ware; brown slip int. and on rim ext.
32. Frag. dish; brick ware; red slip-sm.; dully bnd. int.; thick white slip ext.
33. Frag. rim; greyish-brown ware; dark brown slip-sm.; horiz. bnd. ext. and int. dec. on rim.
34. Frag. rim; greyish-brown ware; red slip-sm.; horiz. bnd.; painted dec. on rim.
35. Frag. dish; red slip-sm. ext. and int.; criss-cross bnd. int.; white spot dec. on rim.
36. Frag. dish; brown ware; grey core; brown slip; diag. bnd. ext.; horiz. bnd. int. and rim.
37. Frag. rim; brick ware; slip-sm.
38. Frag. bowl; red brick ware; wet-sm. ext.; red slip horiz. bnd. int. and rim.



JERICHO. 1935. RIMS OF POTTERY FROM RM. 109 IN THE 11-METRE LEVEL. LATE E.B. II.

PLATE XXIX. POTTERY FRAGMENTS MOSTLY FROM

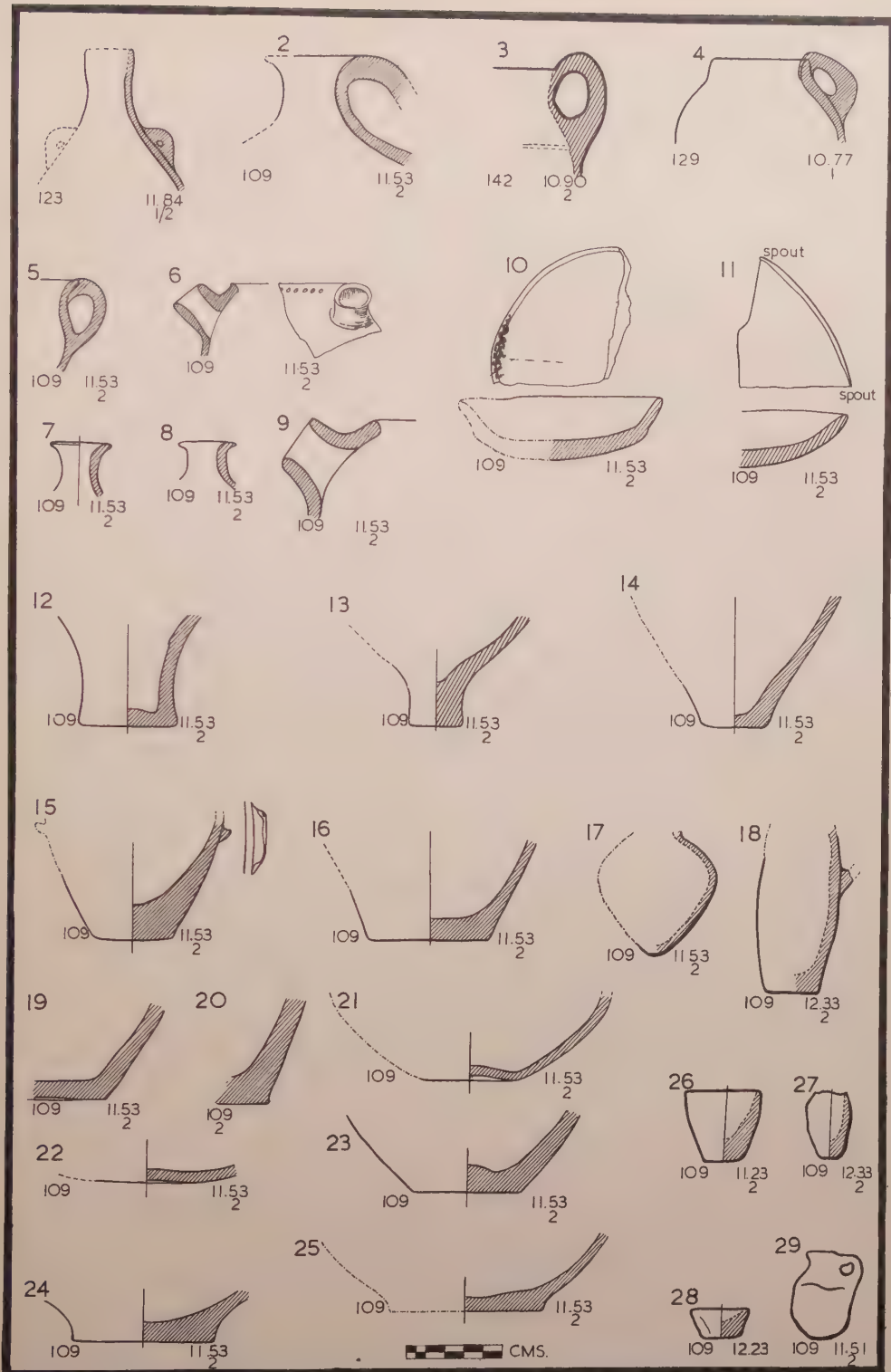
Room 109.

- No. 1. Frag. neck; buff ware; slip-sm. 133.
2. Frag. handle; brick ware; thickly red slip-sm. ext. 109.
3. Frag. rim; buff ware; slip-sm. 142.
4. Neck of juglet; buff ware; slip-sm. 109.
5. Neck of juglet; buff ware; slip-sm. 109.
6. Spout and rim; red brick ware; similar to XXX. 6 109.
7. Frag. lamp; brick ware; red slip-sm. int.; wet-sm. ext.; spouts blackened 109.
8. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
9. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
10. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
11. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
12. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
13. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
14. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
15. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
16. Bottom of jug; brick ware; yellowish-brown slip; highly bnd. ext. 109.
17. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
18. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
19. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
20. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
21. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
22. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
23. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
24. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
25. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
26. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
27. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
28. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
29. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.
30. Base of jug; brown ware; red slip-sm.; vert. bnd. ext. 109.

JERICHO, 1935.

PLATE XXIX. POTTERY FRAGMENTS MOSTLY FROM ROOM 109.

No.		
1.	Frag. neck; buff ware; slip-sm.	123.
2.	Frag. handle; brick ware; thickly red slip-sm. ext.	109.
3.	Frag. handle; lt. brick ware; slip-sm.	351 P.M.J. 142.
4.	Part of jug with loop handle; greyish-brown ware; wet-sm.	129.
6.	Spout; red brick ware; roughly slip-sm; notches below rim.	109.
7.	Neck of juglet; brick ware; red slip-sm.; cont. bnd. ext.	109.
8.	Neck of juglet; lt. grey ware; grey slip-sm.	109.
9.	Spout and rim frag.; red brick ware; similar to XXX, 6	109.
10.	Frag. lamp; brick ware; red slip-sm. int.; wet-sm. ext.; spouts blackened	109.
11.	Frag. lamp; four-spouted; brick ware; slip-sm.; spouts blackened	109.
12.	Base of jug; brown ware; red slip-sm.; vert. bnd. ext.	109.
13.	Base of juglet; lt. brick ware; red slip-sm.; vert. bnd. ext.	109.
14.	Base of jug; reddish-brown slip-sm.; vert. bnd. ext.	109.
15.	Bottom of jar; brick ware; wet-sm.; small pushed-up ledge handle.	109.
16.	Bottom of jug; brick ware; yellowish-brown slip; highly bnd. ext.	109.
17.	Part of juglet; brick ware; reddish-brown slip-sm; vert. bnd. ext.	109.
18.	Part of jug; grey ware; wet-sm.	315 P.M.J. 109.
19.	Bottom of jar; brown ware; coarse grits; wet-sm.; smoke blackened.	109.
20.	Bottom of jar; brown ware; slip-sm. ext.	
21.	Bottom of bowl; few coarse grits; red horiz.bnd. int.; black and brown lustre ext.	109.
23.	Bottom of jug; brick ware; red slip-sm.; vert. bnd. ext.	109.
24.	Bottom of bowl; lt. grey slip-sm. ext.; red slip-sm. bnd. int.	109.
25.	Bottom of bowl; slip-sm.; fire blackened.	109.
26.	Small cup; brick ware; wet-sm.	109.
27.	Small pot; crudely made; grey-brown ware; slip-sm.	109.
28.	Very small pot; crudely made; grey-brown ware; slip-sm.	109.
29.	Jug; crudely made; brick ware.	109.



JERICO, 1935. SPOUTS, LAMPS, BASES, ETC., MOSTLY FROM RM. 109. LATE E B. II.

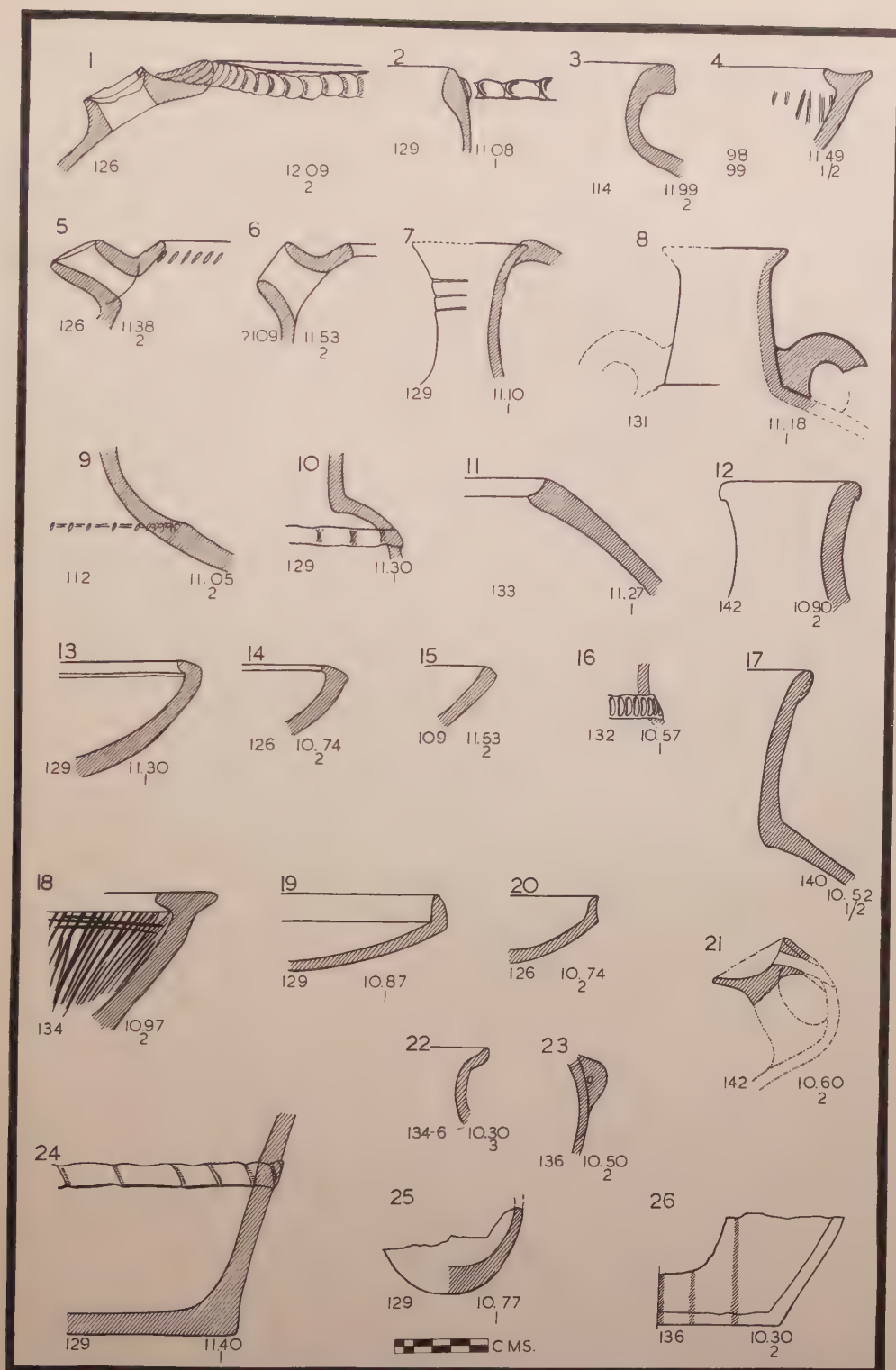
PLATE XXV. POTTERY FRAGMENTS FROM CUPPER E.B.
 LEVERIES IN OR NEAR STRIP 2.

No.	Description	Weight
1.	Spout of blue pot. grey-brown ware; grey core; wet-sm.; raised band of dec.	123.
2.	Base, blue rim; gritty; reddish-brown int.; grey ext.; raised band of dec.	120.
3.	Base, rim; red brick ware; grey core; wet-sm.	114.
5.	Spout; greyish-brown ware; slip-sm.; notches round rim.	126.
6.	Spout; red brick ware; drab slip-sm. ext. and int.	110.
8.	Neck of jar; 2 loop handles; greyish-brown ware; slip-sm.	131.
11.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	133.
12.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
13.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
14.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
15.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
16.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
17.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
18.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
19.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
20.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
21.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
22.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
23.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
24.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
25.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
26.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
27.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
28.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
29.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.
30.	Base, blue rim; greyish-brown ware; gritty; wet-sm.; blackened	142.

JERICHO, 1935.

PLATE XXX. POTTERY FRAGMENTS FROM UPPER E.B. LEVELS IN OR NEAR STRIP 2.

No.	
1. Spout of h.m. pot; grey-brown ware; grey core; wet-sm.; raised band of dec.	123.
2. Frag. h.m. rim; gritty; reddish-brown int.; grey ext.; raised band of dec.	129.
3. Frag. rim; red brick ware; grey core; wet-sm.	114.
5. Spout; greyish-brown ware; slip-sm.; notches round rim.	126.
6. Spout; red brick ware; drab slip-sm. ext. and ?int.	?109.
7. Neck of jug; greyish-brown ware; slip-sm.; dull vert. bnd.	129.
8. Neck of jar; 2 loop handles; greyish-brown ware; slip-sm.	131.
9. Frag. shoulder of jar; lt. grey ware; wet-sm. ridge with notches	112.
10. Frag. of jar; drab ware; wet-sm.; raised band of dec.	129.
11. Frag. h.m. pot; greyish-brown ware; grits; wet-sm; blackened	133.
12. Neck of jar; brick ware; slip-sm. ext.	142.
13. Frag. dish rim; brown ware; red slip-sm.; horiz. bnd. int. and ext.	129.
14. Frag. dish rim; reddish-brown ware; red slip-sm. int.; wet-sm. ext.	126.
15. Frag. dish rim; lt. brick ware; grey core; cream slip; ?horiz. bnd.	109.
16. Frag. brick ware; red slip-sm.; horiz. bnd.; raised bnd. of dec.	132.
17. Frag. neck of jar; greyish-brown int.; fired greenish ext.; wet-sm.	140.
18. Rim of dish; lt. brick ware; grey core; brown slip diag. bnd. int. and rim; horiz. bnd. ext.	134.
19. Frag. dish; red brick ware; slip-sm.; horiz. bnd. rim. ext. and int.; rest dull bnd.	129.
20. Frag. dish; brick ware; brown slip-sm.; ext. and int.	126.
21. Thumb-handle spout; brown ware; red slip-sm. ext. and int.	142.
22. Frag. rim; brown ware; red slip-sm.; horiz. bnd. int.; vert. bnd. ext.	134-6.
23. Handle of pot; lt. brick ware; wet-sm.	136.
24. Bottom of jar; greyish-brown ware; raised band of dec.	129.
25. Bottom of jug; lt. brick ware; wet-sm.	129.
26. Bottom of jar; lt. brick ware; grey core; white slip ext. with red painted lines.	136.



JERICHO, 1935. RIMS AND BASES FROM THE UPPER E.B. LEVELS IN OR NEAR STRIP 2. E.B. II.

1935 JERICHO

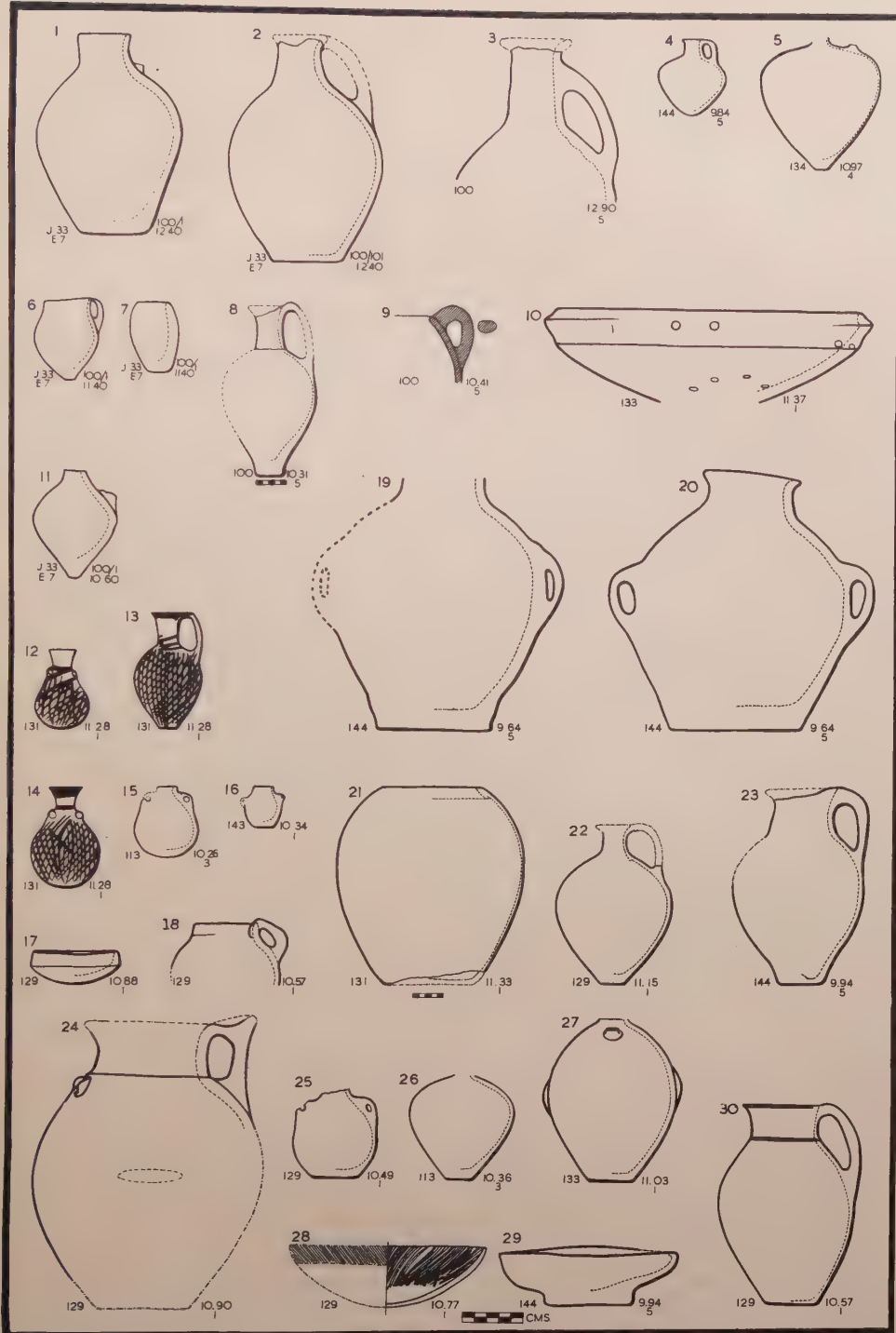
STRIPS 1, 3, 4, 5

1. Jug; red ware; small grits. J.33 E.7.3
2. Jug; reddish ware; gritty; wet-sm. J.33 E.7.1
3. Cat. No. 336. Juglet; brick ware; red slip-sm; bnd. P.M. J.134
4. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
5. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
6. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
7. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
8. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
9. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
10. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
11. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
12. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
13. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
14. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
15. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
16. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
17. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
18. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
19. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
20. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
21. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
22. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
23. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
24. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
25. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
26. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
27. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
28. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
29. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134
30. Cat. No. 336. Juglet; drab ware; red slip bnd. P.M. J.134

JERICHO, 1935.

PLATE XXXI. POTTERY FROM UPPER E.B. LEVELS IN STRIPS 1, 3, 4, 5.

No.			
1.	Jug; red ware; small grits.	J.33.	E.7.3.
2.	Jug; reddish ware; gritty; wet-sm.	J.33.	E.7.1.
3.	Cat. No. 312. Neck of jug; brick ware; red slip-sm.; vert. bnd.	L.100.	
4.	Cat. No. 356. Juglet; brick ware; red slip-sm.; bnd.	144.	
5.	Cat. No. 336. Juglet; drab ware; red slip bnd.	P.M.J.	134.
6.	Jug; pointed bottom; fine ware; no grit; hand m.	J.33.	E.7.5.
7.	Cup; fine red ware.	J.33.	E.7.4.
8.	Cat. No. 313. Jug; brick ware; traces red slip-sm.	L.100.	
10.	Cat. No. 334. Bowl; red brick ware; red slip-sm. bnd. int.; brown slip-sm. ext.	L.133.	
11.	Juglet; piriform; red ware; gritty; white slip.	J.33.	E.7.2.
12.	Cat. No. 332. Pot; brick ware; red painted dec.	P.M.J.	131.
13.	Cat. No. 330. Jug; brick ware; red painted dec.	131.	
14.	Cat. No. 331. Pot; lt. brick ware; red painted dec.	H.M.G.	131.
15.	Cat. No. 318. Jug; brick ware; traces red slip-sm. ext.	H.M.G.	113.
16.	Cat. No. 352. Very small pot; crudely made; greyish ware; slip-sm.	P.M.J.	143.
17.	Cat. No. 329.b. Dish; grey ware; brown slip-sm.	P.M.J.	129.
18.	Handle of jug; brown ware; grits; wet-sm.; blackened.	100.	
19.	Cat. No. 353. Jar; brick ware; wet-sm.	L.144.	
20.	Cat. No. 354. Jar; red brick ware; grey core; red slip-sm.; vert. bnd. irregularly.	H.M.G.	144.
21.	H.m. jar; brick ware; gritty; wet-sm.; blackened.	131.	
22.	Cat. No. 328. Juglet; brick ware; red-brown slip-sm.	129.	
23.	Cat. No. 357. Jug; lt. brick ware; red slip-sm. ext.; surface worn.	A.144.	
24.	Cat. No. 327. Jug; thumb-handle; lt. brick ware; lt. grey core; white slip ext.	P.M.J.?	129.
25.	Cat. No. 326. Jug; two lug handles; lt. brick ware; red slip-sm.	129.	
26.	Cat. No. 319.b. Juglet; drab ware; slip-sm.	113.	
27.	Cat. No. 435. Jar; buff ware; traces red slip; two vert. ledge handles and 1 loop.	L.133.	
29.	Cat. No. 355. Dish; brick ware; wet-sm. ext.; red slip-sm. int.	H.M.G.	144.
30.	Cat. No. 329. Jug; brick ware; red slip-sm.; vert. bnd. ext.	L.129.	



JERICHO, 1935. POTTERY FROM THE UPPER E.B. LEVELS IN STRIPS 1, 3, 4, 5.

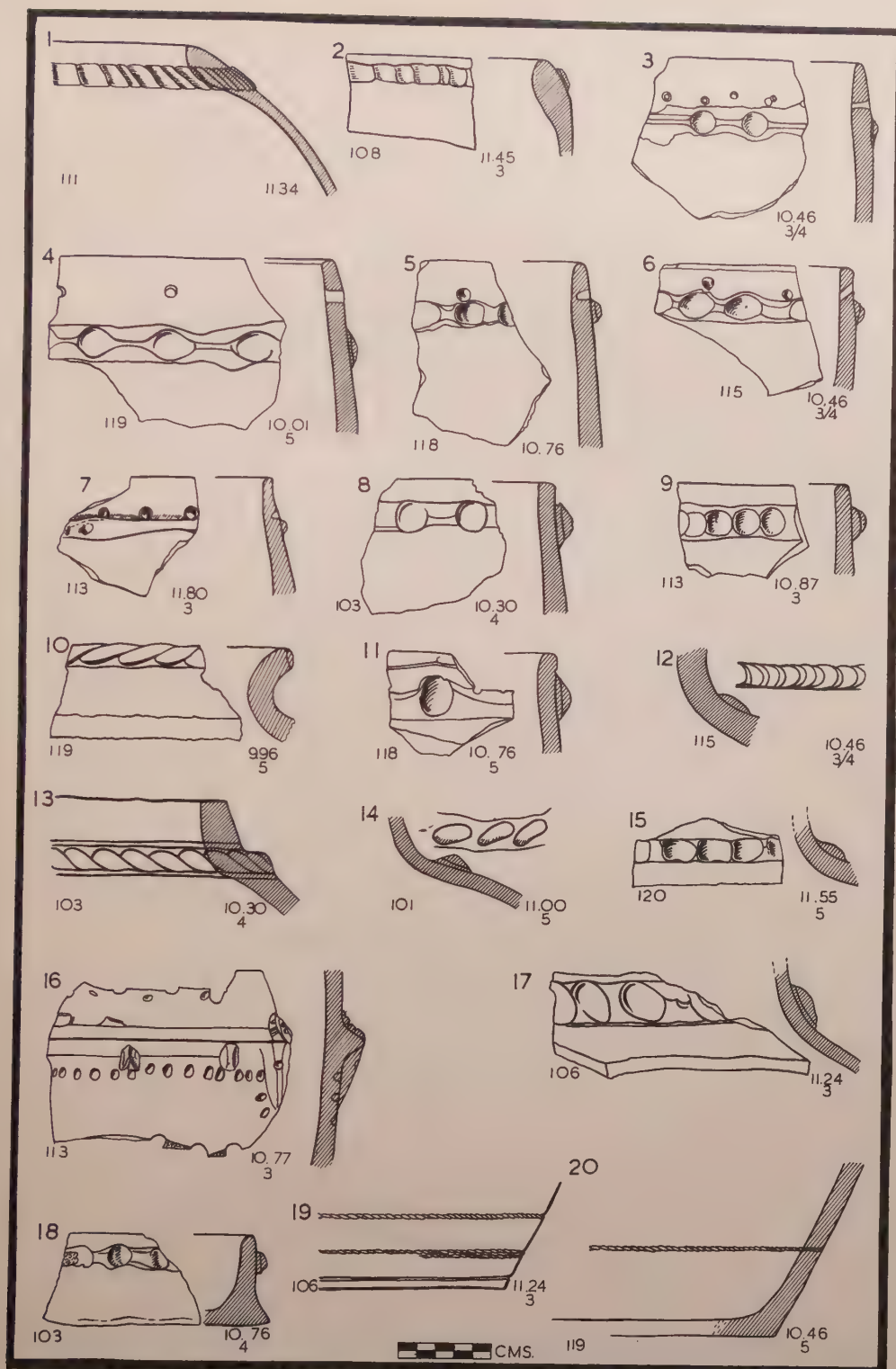
ERICHO, 1938.

ON THE FLIES IN STRIPS 3, 4, 5

JERICHO, 1935.

PLATE XXXII. DECORATED POTTERY FRAGMENTS FROM E.B. LEVELS IN STRIPS 3, 4, 5.

No.	
1. Frag. rim h.m. pot; grey ware; lt. brown slip.	111.
2. Frag. h.m. pot; brick ware; grey core; wet-sm.	108.
3. Frag. rim; brick ware; grey core; gritty; wet-sm.; dec. bnd. and holes.	115.
4. Frag. rim; brick ware; grey core; gritty; wet-sm.; dec. bnd. and holes.	119.
5. Frag. rim; greyish-brown ware; slip-sm.	118.
6. Frag. rim; brick ware; grey core; slip-sm.; one pierced hole.	115.
7. Frag. rim; brick ware; grey core; grey slip-sm. int. and ext.; dec. band and holes.	113.
8. Frag. rim; greyish-brown ware; slip-sm.	103.
9. Frag. rim; brick ware; grey core; wet-sm.	113.
10. Frag. neck; brick ware; slip-sm.; dec. rope pattern edge of rim.	119.
11. Frag. rim; greyish-brown ware; slip-sm.; dec. incised line and band.	118.
12. Frag. from shoulder; grey ware; lt. red slip.	115.
13. Frag. of jar; greyish-brown ware; wet-sm.	103.
14. Frag. of shoulder; grey ware; thick white slip ext.	101.
15. Frag. of jar; brick ware.	120.
16. Frag. ? part of cult object; brick ware; red slip-sm.; dec. vert.? double headed snake.	113.
17. Frag. of jar; brick ware; wet-sm.	106.
18. Part of dish; greyish-brown ware; grey core; slip-sm; crudely made.	103.
19. Bottom of jar; greyish-brown ware; wet-sm.; dec. rope pattern and incised line.	106.
20. Bottom of jar; greyish-brown ware; wet-sm.; dec. rope pattern.	119.



JERICHO, 1935. DECORATED POTTERY JAR FRAGMENTS FROM THE UPPER E.B. LEVELS IN STRIPS 3, 4, 5.

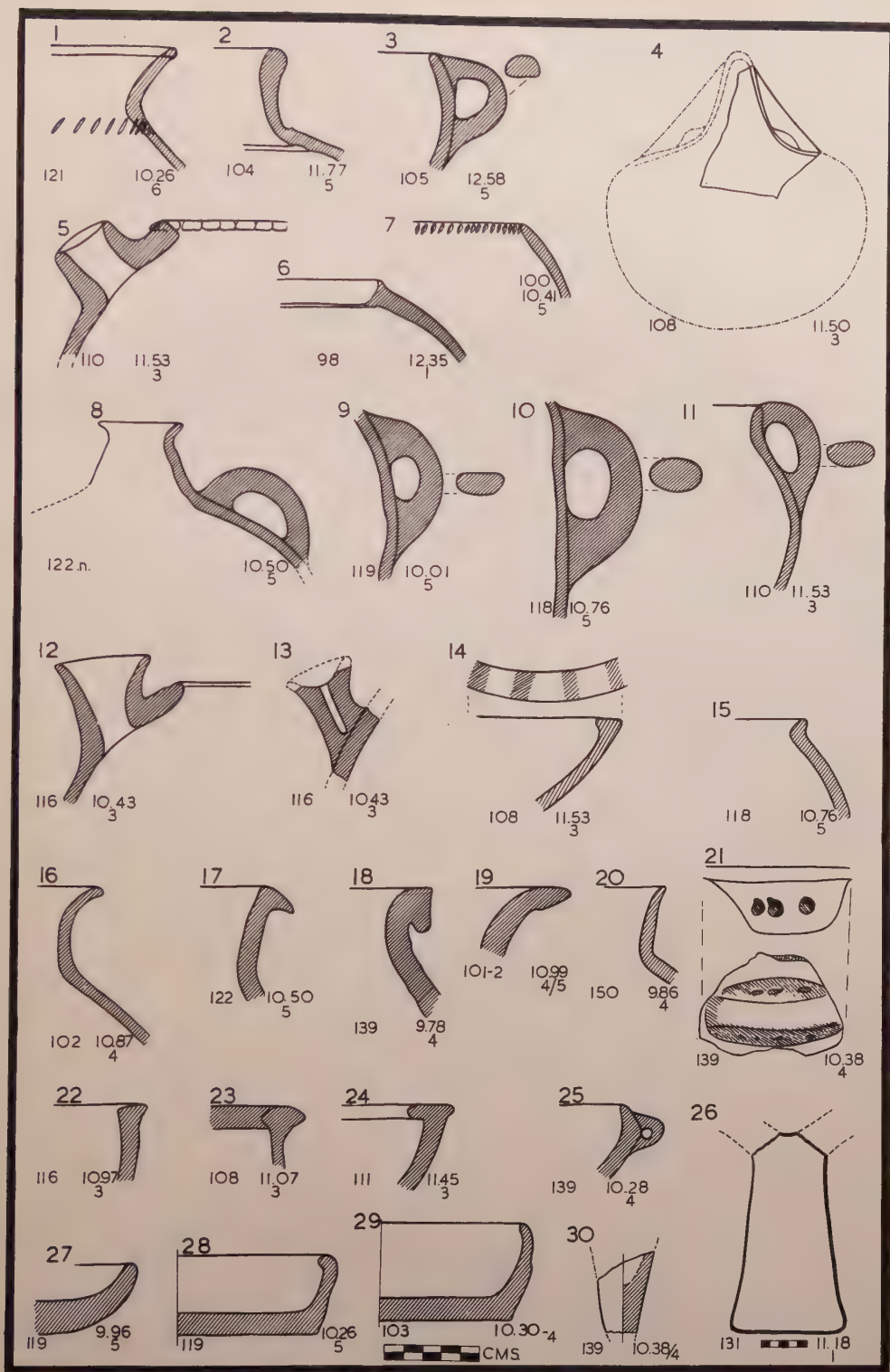
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JERICHO, 1935.

PLATE XXXIII. POTTERY FROM UPPER LEVELS IN STRIPS 1, 3, 4, 5.

No.

1. Frag. neck of jar; dark grey ware; wet-sm.; well finished; dec. incised notches. 121.
2. Frag. neck of jar; buff ware; slip-sm.; ext. and just inside rim. 104.
3. Handle of bowl; dark grey ware; wet-sm.; smoke blackened. 105.
4. Frag. of lamp; flat bottom; knobs near spout; buff ware; wet-sm. 108.
5. Spout and rim; greyish-brown ware; wet-sm. 110.
6. Frag. h.m. pot; brick ware; greyish slip-sm.; traces red paint. 98.
7. Frag. h.m. pot; brown ware; red slip-sm. ext. and int.; dec. incised notches. 100.
8. Top of jug; grey ware; wet-sm.; greyish-brown ext. North of 122.
9. Handle; lt. brick ware; wet-sm. 119.
10. Handle; greyish-brown ware; slip-sm. 118.
11. Part of jug; lt. brick ware; red slip-sm. int. and ext. 110.
12. Spout; greyish ware; white slip ext. 116.
13. Spout handle; brick ware; traces red brick sm. 116.
14. Frag. rim of dish; part grey, part brick colour; red slip horiz. bnd. int. and ext.; dec. rim. 108.
15. Frag. rim of pot; brown ware; gritty; wet-sm. 118.
16. Frag. neck of jar; greyish-brown ware; grey core; wet-sm. 102.
17. Frag. rim of jar; lt. brown ware; grey wash ext. and int. North of 122.
18. Frag. rim of jar; lt. brick ware; wet-sm. 139.
19. Frag. rim of jar; red brick ware; brown slip-sm. ext. and just inside rim. 101/2.
20. Frag. rim; brown ware; red slip-sm. ext. and int.; vert. bnd. neck. 150.
21. Vert. pierced ledge handle; greyish brick ware; red slip-sm. 139.
22. Frag. rim of bowl; brick ware; wet-sm. 116.
23. Frag. rim; greyish-brown ware; grey core; wet-sm. 108.
24. Frag. rim of dish; lt. brick ware; slip-sm.; traces horiz. bnd.; worn. 111.
25. Handle of bowl; brown ware; lt. red slip-sm. int. and ext. 139.
27. Frag. of lamp; crudely made; greyish ware; wet-sm. 119.
28. Dish; greyish-brown ware; gritty; grey slip-sm. ext. 119.
29. Dish; greyish-brown ware; wet-sm. 103.
30. Bottom frag. of jug; drab ware; wet-sm. 139.



JERICHO, 1935. RIMS, HANDLES, LAMP, ETC., FROM UPPER LEVELS IN STRIPS 1, 3, 4, 5.

PLATE XXIV POTTERY FROM TOMB 341

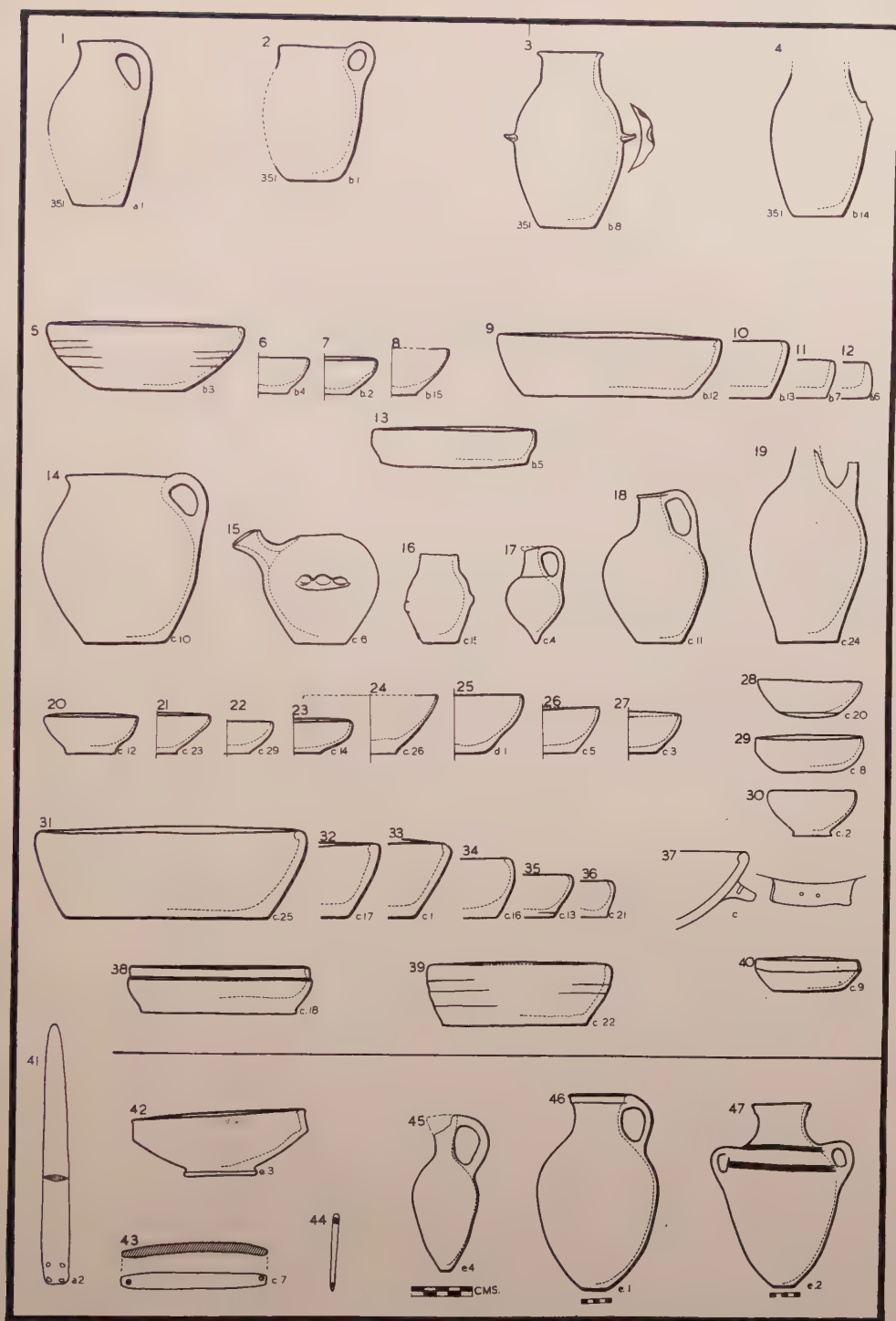
1. 19, 27. Lt. brick ware; coarse grit; coarse pottery.
2. 1. (M.); c. 24; c. 2.
3. 1. (M.); c. 1.
4. 1. (M.); c. 1.
5. 1. (M.); c. 1.
6. 1. (M.); c. 1.
7. 1. (M.); c. 1.
8. 1. (M.); c. 1.
9. 1. (M.); c. 1.
10. 1. (M.); c. 1.
11. 1. (M.); c. 1.
12. 1. (M.); c. 1.
13. 1. (M.); c. 1.
14. 1. (M.); c. 1.
15. 1. (M.); c. 1.
16. 1. (M.); c. 1.
17. 1. (M.); c. 1.
18. 1. (M.); c. 1.
19. 1. (M.); c. 1.
20. 1. (M.); c. 1.
21. 1. (M.); c. 1.
22. 1. (M.); c. 1.
23. 1. (M.); c. 1.
24. 1. (M.); c. 1.
25. 1. (M.); c. 1.
26. 1. (M.); c. 1.
27. 1. (M.); c. 1.
28. 1. (M.); c. 1.
29. 1. (M.); c. 1.
30. 1. (M.); c. 1.
31. 1. (M.); c. 1.
32. 1. (M.); c. 1.
33. 1. (M.); c. 1.
34. 1. (M.); c. 1.
35. 1. (M.); c. 1.
36. 1. (M.); c. 1.
37. 1. (M.); c. 1.
38. 1. (M.); c. 1.
39. 1. (M.); c. 1.
40. 1. (M.); c. 1.
41. 1. (M.); c. 1.
42. 1. (M.); c. 1.
43. 1. (M.); c. 1.
44. 1. (M.); c. 1.
45. 1. (M.); c. 1.
46. 1. (M.); c. 1.
47. 1. (M.); c. 1.
48. 1. (M.); c. 1.
49. 1. (M.); c. 1.
50. 1. (M.); c. 1.
51. 1. (M.); c. 1.
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63. 1. (M.); c. 1.
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80. 1. (M.); c. 1.
81. 1. (M.); c. 1.
82. 1. (M.); c. 1.
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89. 1. (M.); c. 1.
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91. 1. (M.); c. 1.
92. 1. (M.); c. 1.
93. 1. (M.); c. 1.
94. 1. (M.); c. 1.
95. 1. (M.); c. 1.
96. 1. (M.); c. 1.
97. 1. (M.); c. 1.
98. 1. (M.); c. 1.
99. 1. (M.); c. 1.
100. 1. (M.); c. 1.

JERICHO, 1935.

PLATE XXXIV. POTTERY FROM TOMB 351.

No.

- 1, 19, 27. Lt. brick ware; coarse grits; coarse pottery. a.1.(M.); c.24; c.3.
2. Drab ware; fine grit; coarse crumbly pottery. (M.) b.1.
3. Drab ware; fine grit; smooth finish; 2 wavy ledge handles. (A.) b.8.
4. Drab ware; very coarse grits. (A.) b.14.
- 5, 9, 20, 28, 30, 31, 39, 40. Drab ware; { b.3.(M.); b.12; c.12.(M.);
some grit; wet-sm.; ?wh. finished. { c.20; c.2.(A.); c.25.(A.);
c.22.(L.); c.9.(L.)
6. Drab ware; coarse grit; smooth finish. b.4.
- 7, 26. Lt. brick ware; gritty. b.2; c.5.
8. Drab ware; wet-sm. (L.) b.15.
10. Dish; wh.m. b.13.
11. Grey ware; thick pottery; some grit; hand-m. (L.) b.7.
12. Drab ware; thick pottery; some grit; hand m.; wh. finished. (A.) b.6.
13. Drab ware; some grit; coarse, crumbly pottery; wh. m.;
burnt. (M.) b.5.
- 14, 29. Lt. brick ware; gritty; wet-sm. c.10 (M.); c.8. (M.)
15. H.m. pot with spout; drab ware; some grit; wet-sm.; wh.m.; 2
ledge handles. c.6.
16. Drab ware; gritty; crudely hand m.; 2 elementary ledge
handles. (A.) c.15.
17. Grey ware; some grit. (M.) c.4.
18. Drab ware; gritty; traces of red slip. (M.) c.11.
21. Drab ware; gritty; wh. m. c.23.
22. Drab ware; coarse pottery. c.29.
23. Lt. brick ware; gritty; wh. m.; blackened rim. c.14.
24. Drab ware; coarse grits; wh. m. (M.) c.26.
25. Lt. brick ware; very coarse grit; wh. m. (A.) d.1.
- 32, 33, 35. Lt. brick ware; coarse grit; wet-sm.;
wh. finished. c.17(A.); c.1.(M.); c.13.
38. Drab ware; gritty; partly burnt; wh. finished round rim. (M.) c.18.
41. Bronze dagger; complete; originally fixed to handle
with 4 bronze nails. (A.) a.2.
42. Grey ware; some grit; wet-sm.; wh. m. (M.) e.3.
43. Black stone with a hole at each end. (L.) c.7.
44. Bone needle.
45. Lt. brick ware; no grit; red slip bnd. (A.) e.4.
46. Drab ware; some grit; wet-sm.; well finished; wh.m. (A.) e.1.
47. Drab ware; some coarse grits; wet-sm.; wh.m.; dec.
2 bands of combing. (A.) e.2.



JERICHO. 1935. TOMB GROUP 351 Nos. 1-40. LATE E.B. II. Nos. 42. 45 47. M.B. II.

PLATE XXXV. SOME VARIETIES OF LEDGE HANDLES.
 JERICHO, 1932.

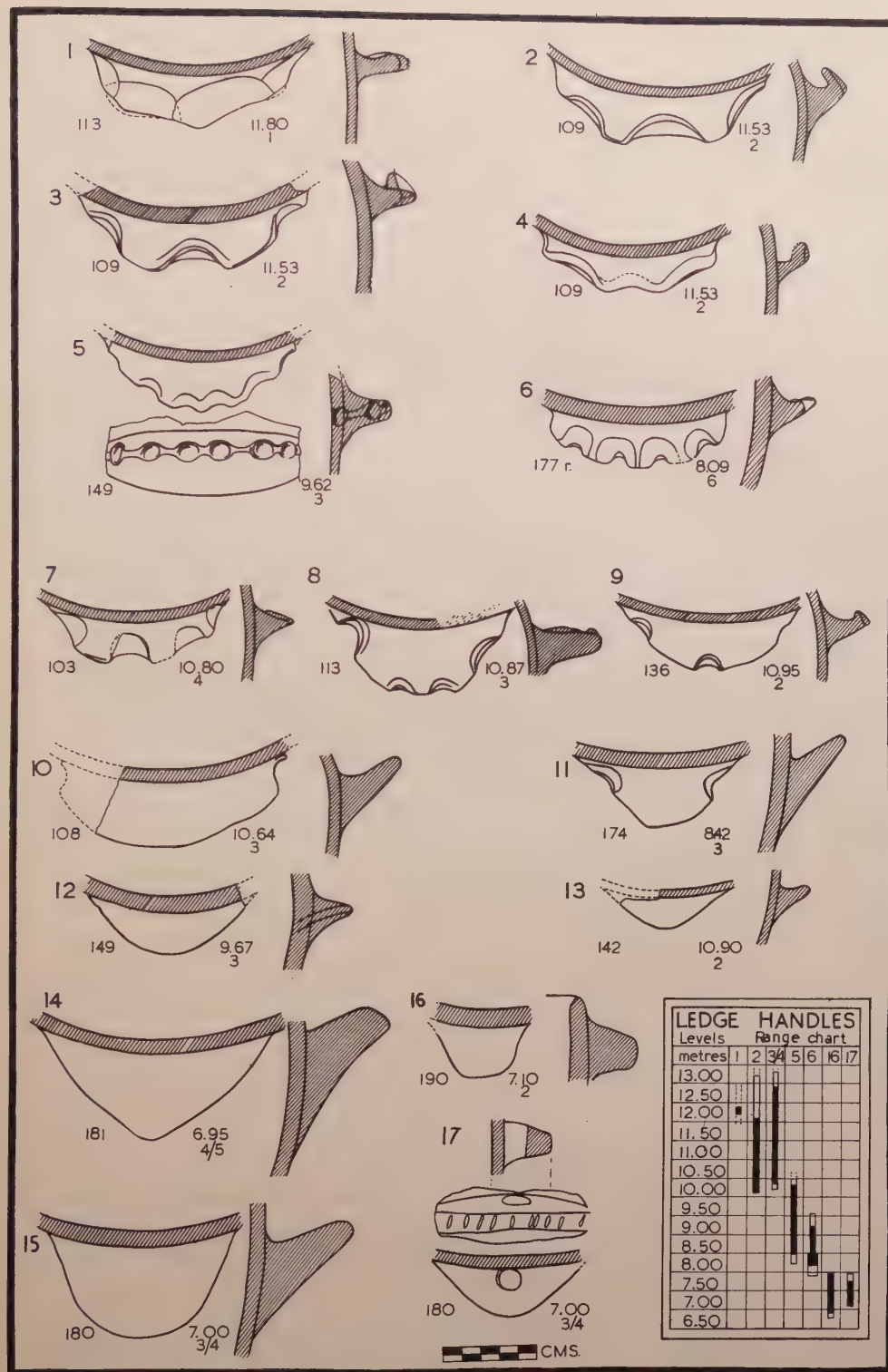
- | | | |
|-----|--|------|
| No. | Description | 113. |
| 1. | Enveloped ledge handle; dish ware; wet-sm.; well finished. | |
| 2. | Flushed-up ledge handle; ft. brick ware; grey core; wet-sm. | 100. |
| 3. | Pushed-up ledge handle; brick ware; slip-sm.; 2 finished lines | 109. |
| 4. | Lead handle. | 100. |
| 5. | Flange impressions edge; red brick ware; greyish wash. | 140. |
| 6. | Ledge with four fold-overs; brown ware; slip-sm. | 177. |
| 7. | Ledge handle with 3 notches; back ware; traces of red slip. | 186. |
| 8. | Ledge handle with 2 notches; brown ware; red slip-sm. | 174. |
| 9. | Plain ledge; buff ware; reddish-brown slip-sm.; int. of pot | 149. |
| 10. | Ledge handle with 3 notches; back ware; traces of red slip. | 186. |
| 11. | Ledge handle with 2 notches; brown ware; red slip-sm. | 174. |
| 12. | Plain ledge; buff ware; reddish-brown slip-sm.; int. of pot | 149. |



JERICHO, 1935.

PLATE XXXV. TYPE VARIETIES OF LEDGE HANDLES.

No.		
1.	Enveloped ledge handle; drab ware; wet-sm.; well finished.	113.
2.	Pushed-up ledge handle; lt. brick ware; grey core; wet-sm.	109.
3.	Pushed-up ledge handle; brick ware; slip-sm.; 2 incised lines below handle.	109.
4.	Pushed-up ledge handle; lt. brick ware; red slip-sm.; jar bnd.	109.
5.	Finger impressions edge; red brick ware; greyish wash.	149.
6.	Ledge with four fold-overs; brown ware; slip-sm.	177.
7.	Folded over ledge handle; brick ware; greyish slip.	103.
8.	Ledge handle with four notches; brick ware; wet-sm.	113.
9.	Ledge handle with 3 notches; brick ware; traces of red slip.	136.
10.	Ledge handle with 2 notches; reddish brick ware; wet-sm.	108.
11.	Ledge handle with 2 notches; brown ware; red slip-sm.	174.
12.	Plain ledge; buff ware; reddish-brown slip-sm.; int. of pot wet-sm.	149.
13.	Small plain ledge handle; red slip-sm.	142.
14.	Plain triangular ledge handle; brick ware; wet-sm.	181.
15.	Plain ledge handle; brick ware; very gritty.	180.
16.	Knob ledge handle; brick ware; slip-sm.	190.
17.	Horiz. notched and pierced ledge; brick ware; red slip.	180.



JERICHO, 1935. LEDGE HANDLES, TYPES AND VARIETIES; WITH RANGE CHART: E.B.

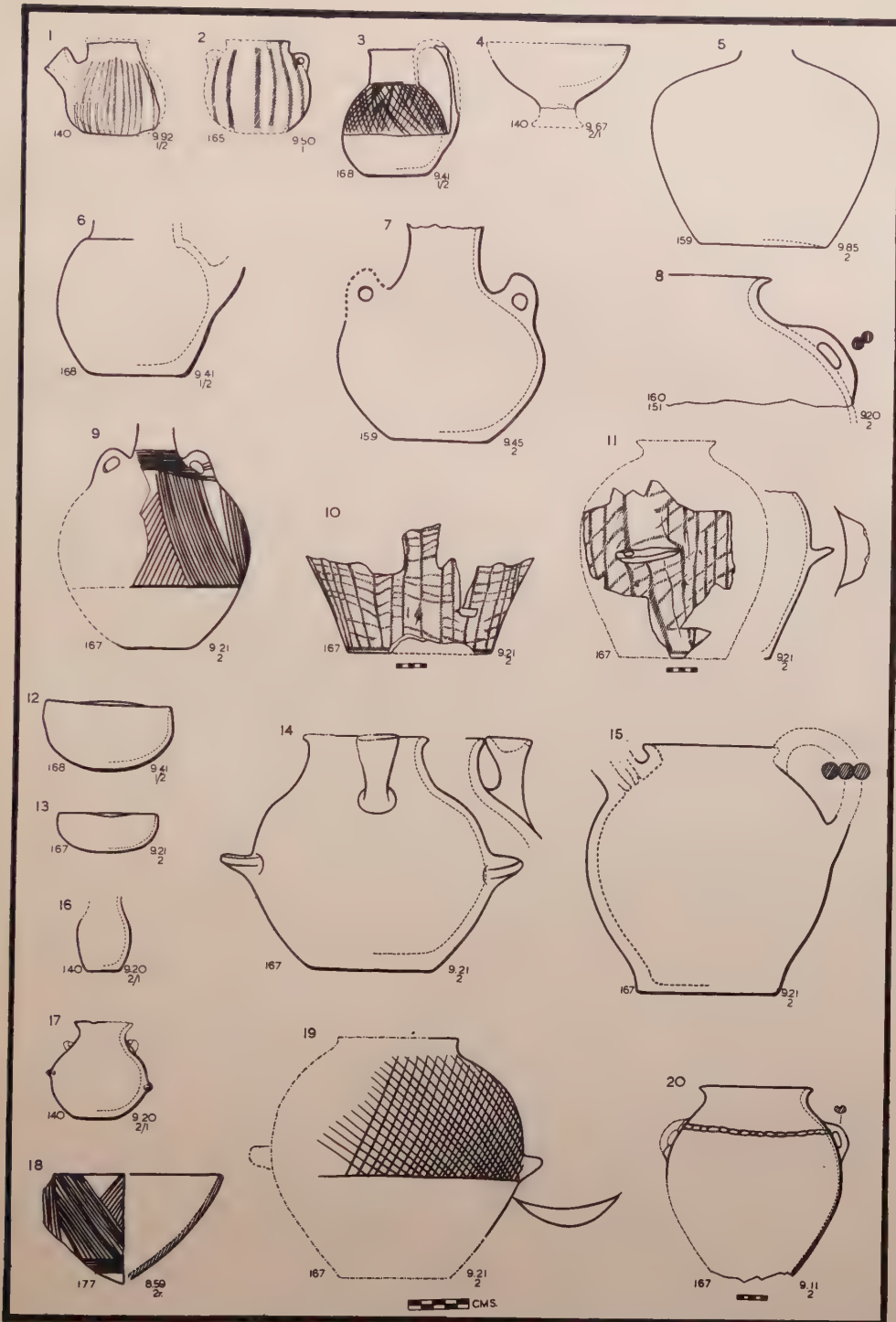
1. Cat. No. 343. Pot. lt. brick ware; slip-sm.; dec. painted lines; spout smeared with red. 140.
2. Jar; brick ware; red painted dec. 108.
3. Cat. No. 370. Jar; grey ware; brown slip-sm.; upper half band; lower polished. H.M.G. 168.
4. Bowl with pedestal; brown ware; red slip-sm.; both. band ext. and int. 140.
5. Cat. No. 372. Jug; lt. brick ware; slip-sm. L. 168.
6. Cat. No. 444. Jug; brick ware; slip-sm.; dec. dark brown lines; neck worn.
7. Cat. No. 306. Jar; grey ware; white slip; 2 ledge handles and thumb. H.M.G. 168.
8. Cat. No. 306. Bowl; dun ware; slip-sm.



JERICHO, 1935.

PLATE XXXVI. POTTERY FROM THE LOWER E.B. LEVELS.

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| No. | | | |
| 1. | Cat. No. 343. | Pot; lt. brick ware; slip-sm.; dec. painted lines; spout smeared with red. | 140. |
| 2. | | Jar; brick ware; red painted dec. | 165. |
| 3. | Cat. No. 370. | Jar; grey ware; brown slip-sm.; upper half bnd.; lower polished. | H.M.G.168. |
| 4. | | Bowl with pedestal; brown ware; red slip-sm.; horiz. bnd. ext. and int. | 140. |
| 6. | Cat. No. 372. | Jug; lt. brick ware; slip-sm. | L.168. |
| 7. | Cat. No. 361. | Jug; brown ware; greyish-brown slip bnd. | P.M.J.159. |
| 9. | Cat. No. 444. | Jug; brick ware; slip-sm.; dec. dark brown lines; neck worn. | L.167. |
| 10. | Cat. No. 368. | Frag. jar; lt. brick ware; white slip; red painted dec. | P.M.J.167. |
| 11. | | Frag. jar; brick ware; white slip; red painted dec. | 167. |
| 12. | Cat. No. 371. | Bowl; lt. brick ware; wet-sm. | P.M.J.168. |
| 13. | Cat. No. 367. | Bowl; buff ware; slip-sm. | 167. |
| 14. | Cat. No. 366. | Jar; grey ware; white slip, traces of orange; 2 ledge handles and thumb-spout. | H.M.G.167. |
| 15. | | Jug with spout; brick ware; wet-sm.; triple handle. | A.167. |
| 16. | Cat. No. 339. | Jug frag.; lt. brick ware; wet-sm. | 140. |
| 17. | Cat. No. 341. | Pot; lt. brick ware; wet-sm.; 2 ledge and 2 horiz. loop handles. | P.M.J.140. |
| 18. | Cat. No. 377. | Frag. bowl; greyish brick ware; dec. diag. brown lines int. | 177. |
| 19. | | Frag. jar; brown ware; red slip; bnd.; plain ledge handles. | 167. |
| 20. | | Jar; grey brick ware; wet-sm.; dec. narrow raised band. | 167. |



JERICO. 1935. POTTERY FROM THE LOWER E.B. LEVELS IN STRIP 2. E.B. I.

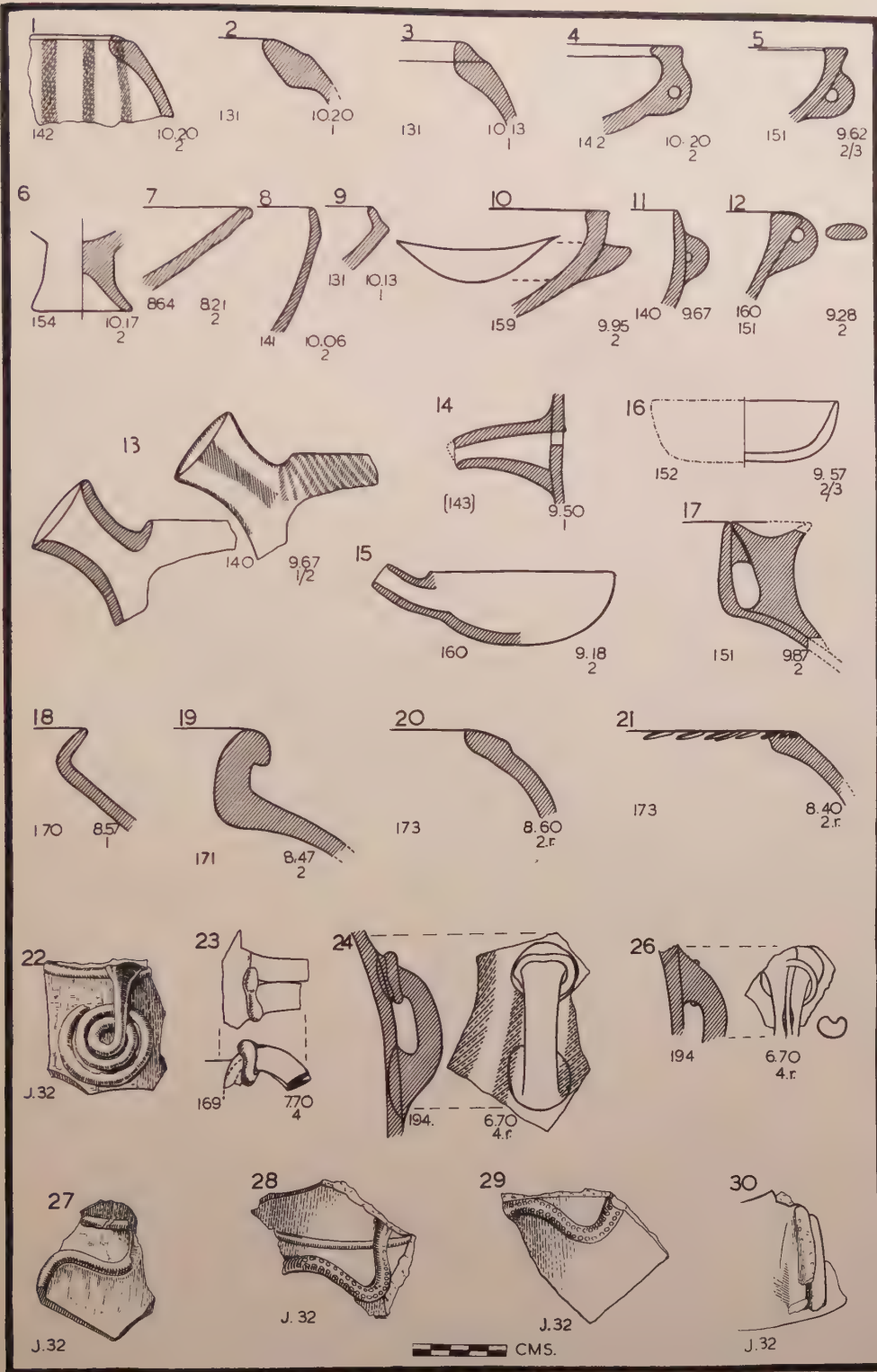
1. Rim and handle of dish; grey-brown ware; int.; brown
band ext. and rim.
2. Rim and handle of dish; brick ware; wet-sam. int. red slip-sam.
band ext. and rim.
3. Rim and handle of dish; brown ware; wet-sam. int. and
ext.
4. Rim and handle of dish; brown ware; wet-sam. int. and
ext.
5. Rim and handle of dish; brown ware; wet-sam. int. and
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6. Rim and handle of dish; brown ware; wet-sam. int. and
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17. Rim and handle of dish; brown ware; wet-sam. int. and
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18. Rim and handle of dish; brown ware; wet-sam. int. and
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19. Rim and handle of dish; brown ware; wet-sam. int. and
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20. Rim and handle of dish; brown ware; wet-sam. int. and
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21. Rim and handle of dish; brown ware; wet-sam. int. and
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22. Rim and handle of dish; brown ware; wet-sam. int. and
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23. Rim and handle of dish; brown ware; wet-sam. int. and
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24. Rim and handle of dish; brown ware; wet-sam. int. and
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25. Rim and handle of dish; brown ware; wet-sam. int. and
ext.

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JERICHO, 1935.

PLATE XXXVII. FRAGMENTS OF RIMS AND SPOUTS FROM LOWER E.B. LEVELS.

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| No. | | |
| 1. | Frag. h.m. pot; reddish-brown ware; grey core; white wash; dec. lt. brown paint. | 142. |
| 2. | Frag. h.m. pot; brown ware; gritty; wet-sm. | 131. |
| 3. | Frag. h.m. pot; brown ware; gritty; wet-sm.; smoke blackened. | 131. |
| 4. | Rim and handle of dish; brick ware; wet-sm. int.; red slip-sm. bnd. ext. and rim. | 142. |
| 5. | Rim and handle of dish; grey-brown ware; bnd. int.; brown slip-sm. ext. | 151. |
| 6. | Pedestal base; reddish-brown ware; traces red slip-sm. int. and ext. | 154. |
| 7. | Frag. dish rim; greyish-brown ware; wet-sm. | 164. |
| 8. | Frag. bowl rim; red brick ware; wet-sm. | 141. |
| 9. | Frag. rim of dish; lt. brick ware; gritty; cream slip; rough surface. | 131. |
| 10. | Rim and ledge handle of dish; brown ware; red slip-sm. int. and ext. | North of 159. |
| 11. | Rim and handle of bowl; buff ware; wet-sm. int.; red slip polished ext. | 140. |
| 12. | Rim and handle of dish; brick ware; wet-sm. | 160/151. |
| 13. | Spout of pot; brick ware; creamy slip dec. red painted lines. | 140. |
| 14. | Spout; grey-brown ware; red slip-sm. ext. | 143. |
| 15. | Spouted dish; brown ware; grey core; red slip-sm. int. and ext. | 160. |
| 16. | Frag. bowl; brown ware; wet-sm. int.; red slip-sm. horiz. bnd. ext. and over rim. | 152. |
| 17. | Thumb-spout handle; brick ware; wet-sm. | 151. |
| 18. | Frag. neck; brick ware; grey core; red slip-sm. ext. and over neck int. | 170. |
| 19. | Rim frag. of jar; brick ware; grey core; brown slip-sm. ext. and down neck int. | North of 171. |
| 20. | Frag. h.m. pot; brown ware; gritty; reddish-brown slip-sm. | 173. |
| 21. | Frag. h.m. pot; brick ware; wet-sm.; dec. notches rim; smoke blackened. | 173. |
| 23. | Handle of pot; dec. coil of clay, ?snake <i>motif</i> . | 169. |
| 24. | Frag. with handle; grey-brown ware; grey core; white slip dec. red paint. | 194. |
| 26. | Jug handle; grey-brown ware; wet-sm.; grooves up centre. | 194. |



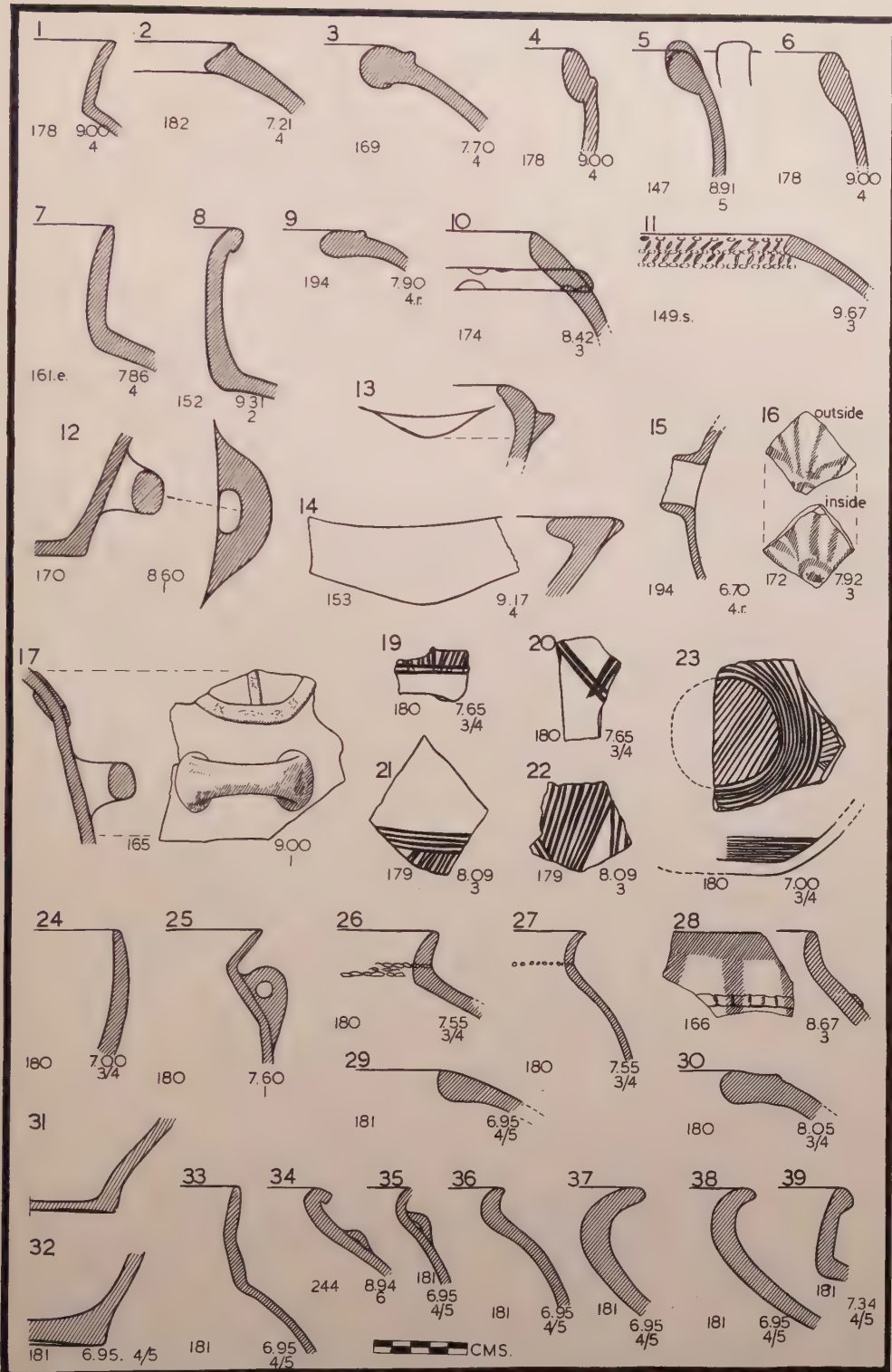
II. FRAGMENTS OF DECORATED POTTERY
THE LOWER F.R. LEVELS IN STRIPS 1-5

178	frag. neck; brown ware; lt. grey core; red slip-sm. ext. and inside rim.
179	frag. rim h.m. pot; brown ware; gritty; brown slip-sm. int. blackened ext.
180	frag. rim h.m. pot; brick ware; wet-sm.
181	frag. rim h.m. pot; brown ware; traces of white slip; small handles around rim.
182	frag. jar; greyish-brown ware; creamy slip ext.
183	frag. rim h.m. pot; brown ware; wet-sm. (level G-70)
184	frag. rim h.m. pot; brown ware; grey core; gritty
185	frag. rim h.m. pot; brown ware; grey core; gritty
186	frag. rim h.m. pot; brown ware; grey core; gritty
187	frag. rim h.m. pot; brown ware; grey core; gritty
188	frag. rim h.m. pot; brown ware; grey core; gritty
189	frag. rim h.m. pot; brown ware; grey core; gritty
190	frag. rim h.m. pot; brown ware; grey core; gritty
191	frag. rim h.m. pot; brown ware; grey core; gritty
192	frag. rim h.m. pot; brown ware; grey core; gritty
193	frag. rim h.m. pot; brown ware; grey core; gritty
194	frag. rim h.m. pot; brown ware; grey core; gritty
195	frag. rim h.m. pot; brown ware; grey core; gritty
196	frag. rim h.m. pot; brown ware; grey core; gritty
197	frag. rim h.m. pot; brown ware; grey core; gritty
198	frag. rim h.m. pot; brown ware; grey core; gritty
199	frag. rim h.m. pot; brown ware; grey core; gritty
200	frag. rim h.m. pot; brown ware; grey core; gritty
201	frag. rim h.m. pot; brown ware; grey core; gritty
202	frag. rim h.m. pot; brown ware; grey core; gritty
203	frag. rim h.m. pot; brown ware; grey core; gritty
204	frag. rim h.m. pot; brown ware; grey core; gritty
205	frag. rim h.m. pot; brown ware; grey core; gritty
206	frag. rim h.m. pot; brown ware; grey core; gritty
207	frag. rim h.m. pot; brown ware; grey core; gritty
208	frag. rim h.m. pot; brown ware; grey core; gritty
209	frag. rim h.m. pot; brown ware; grey core; gritty
210	frag. rim h.m. pot; brown ware; grey core; gritty
211	frag. rim h.m. pot; brown ware; grey core; gritty
212	frag. rim h.m. pot; brown ware; grey core; gritty
213	frag. rim h.m. pot; brown ware; grey core; gritty
214	frag. rim h.m. pot; brown ware; grey core; gritty
215	frag. rim h.m. pot; brown ware; grey core; gritty
216	frag. rim h.m. pot; brown ware; grey core; gritty
217	frag. rim h.m. pot; brown ware; grey core; gritty
218	frag. rim h.m. pot; brown ware; grey core; gritty
219	frag. rim h.m. pot; brown ware; grey core; gritty
220	frag. rim h.m. pot; brown ware; grey core; gritty
221	frag. rim h.m. pot; brown ware; grey core; gritty
222	frag. rim h.m. pot; brown ware; grey core; gritty
223	frag. rim h.m. pot; brown ware; grey core; gritty
224	frag. rim h.m. pot; brown ware; grey core; gritty
225	frag. rim h.m. pot; brown ware; grey core; gritty
226	frag. rim h.m. pot; brown ware; grey core; gritty
227	frag. rim h.m. pot; brown ware; grey core; gritty
228	frag. rim h.m. pot; brown ware; grey core; gritty
229	frag. rim h.m. pot; brown ware; grey core; gritty
230	frag. rim h.m. pot; brown ware; grey core; gritty
231	frag. rim h.m. pot; brown ware; grey core; gritty
232	frag. rim h.m. pot; brown ware; grey core; gritty
233	frag. rim h.m. pot; brown ware; grey core; gritty
234	frag. rim h.m. pot; brown ware; grey core; gritty
235	frag. rim h.m. pot; brown ware; grey core; gritty
236	frag. rim h.m. pot; brown ware; grey core; gritty
237	frag. rim h.m. pot; brown ware; grey core; gritty
238	frag. rim h.m. pot; brown ware; grey core; gritty
239	frag. rim h.m. pot; brown ware; grey core; gritty
240	frag. rim h.m. pot; brown ware; grey core; gritty
241	frag. rim h.m. pot; brown ware; grey core; gritty
242	frag. rim h.m. pot; brown ware; grey core; gritty
243	frag. rim h.m. pot; brown ware; grey core; gritty
244	frag. rim h.m. pot; brown ware; grey core; gritty
245	frag. rim h.m. pot; brown ware; grey core; gritty
246	frag. rim h.m. pot; brown ware; grey core; gritty
247	frag. rim h.m. pot; brown ware; grey core; gritty
248	frag. rim h.m. pot; brown ware; grey core; gritty
249	frag. rim h.m. pot; brown ware; grey core; gritty
250	frag. rim h.m. pot; brown ware; grey core; gritty

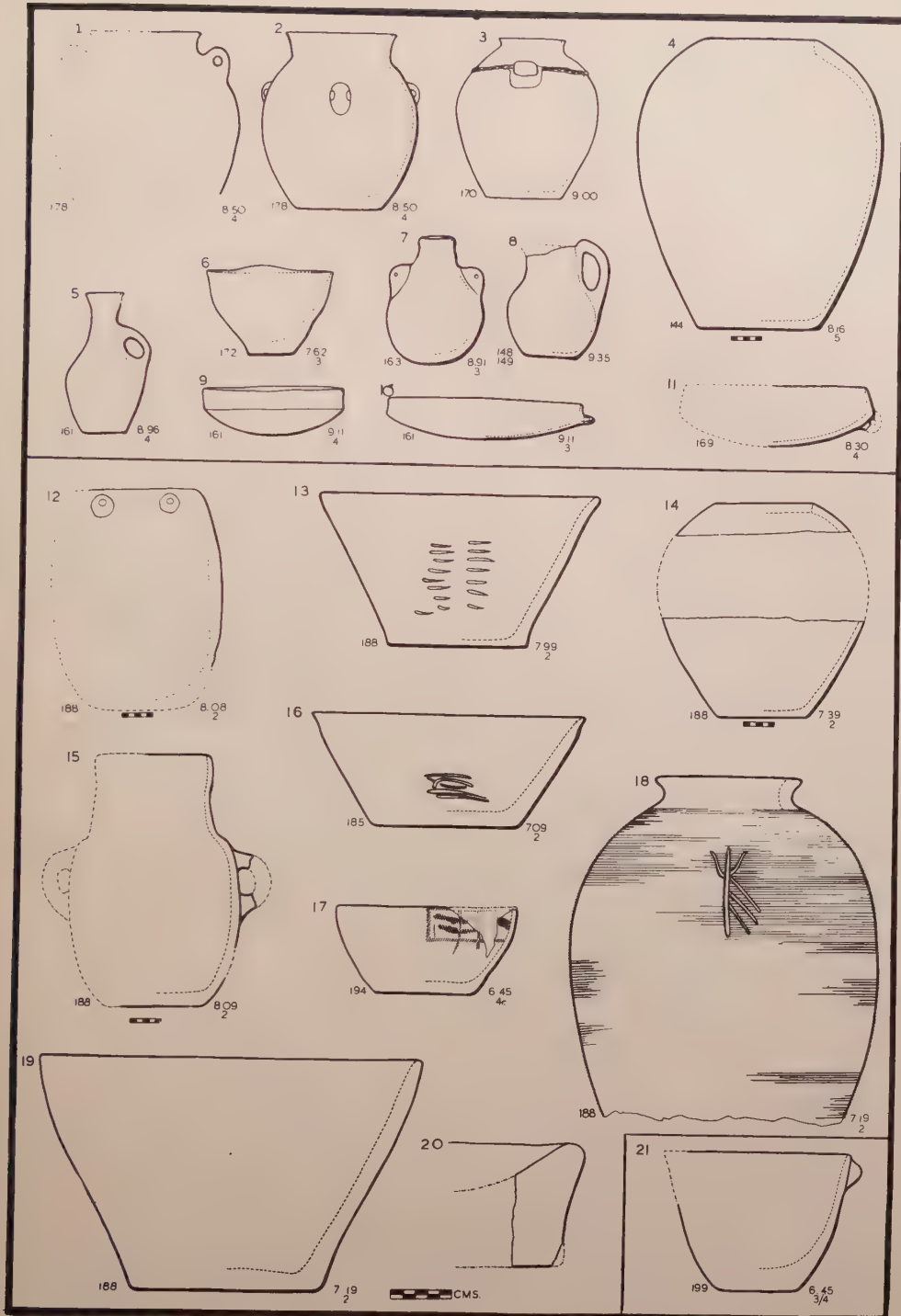
JERICHO, 1935.

PLATE XXXVIII. FRAGMENTS OF DECORATED POTTERY FROM THE LOWER E.B. LEVELS IN STRIPS 1-5.

No.		
1.	Frag. neck; brown ware; lt. grey core; red slip-sm. ext. and inside rim.	178.
2.	Frag. rim h.m. pot; lt. brick ware; gritty; wet-sm.; rim smoke blackened.	182.
3.	Frag. rim h.m. pot; brown ware; gritty; brown slip-sm. int.; blackened ext.	169.
4.	Frag. rim h.m. pot; brick ware; wet-sm.	178.
5.	Frag. rim h.m. pot; brown ware; traces of white slip; small handles around rim.	147.
6.	Frag. rim h.m. pot; lt. brick ware; grey core; wet-sm.; deposit ext.	178.
7.	Frag. neck; red brick ware; grey core; wet-sm.	East of 161.
8.	Frag. jar; greyish-brown ware; creamy slip ext.	152.
9.	Frag. rim h.m. pot; brown ware; wet-sm. (level 6-70)	194.
10.	Frag. rim h.m. pot; lt. brown ware; grey core; gritty; wet-sm.; blackened; dec. band.	174.
11.	Frag. rim h.m. pot; brown ware; grits; wet-sm.; dec. holes and notches.	South of 149.
12.	Frag. base; horiz. handle; brick ware; traces white slip ext.	170.
13.	Frag. rim of bowl with ledge handle; brick ware; gritty; wet-sm.	162.
14.	Frag. rim of dish; lt. brick ware; grey core; yellowish slip-sm. bnd. ext.	153.
16.	Frag. lt. brick ware; cream slip; dec. painted red lines ext. and int.	172.
17.	Frag. shoulder; with horiz. handle and raised dec.	166.
19.	Frag. brick ware; slip-sm.; red painted dec.	180.
20.	Frag. lt. brick ware; wet-sm.; dec. dark brown painted lines.	P.M.J. 180.
21.	Frag. lt. brick ware; slip-sm.; painted brown dec.	179.
22.	Frag. lt. brick ware; creamy slip with red painted dec. ext.	179.
23.	Frag. dish; lt. brick ware; wet-sm. ext.; slip-sm. int. with reddish painted dec.	180.
24.	Frag. rim bowl; brown ware; very gritty; red slip-sm. int. and ext.	180.
25.	Frag. neck; grey ware; lt. brown slip-sm.; lug handle.	180.
26.	Frag. neck; brown ware; grey core; wet-sm.; dec. crude notches.	180.
27.	Frag. neck; brick ware; slip-sm. ext. and inside rim; holes for dec.	180.
28.	Frag. rim of pot; lt. brick ware; grey slip int.; cream slip ext.; dec. red paint, etc.	166.
29.	Rim frag. h.m. pot; greyish-brown ware; gritty; wet-sm.; smoke blackened.	181.
33.	Frag. neck of jar; grey ware; faint ribbing ext.	181.
34.	Frag. rim; brick ware; grey core; greyish slip-sm.; small handle.	244.
35.	Frag. rim; brick ware; slip-sm.; small loop handle.	181.
36.	Frag. rim; brown ware; slip-sm.	181.
37.	Frag. rim; greyish-brown ware; slip-sm.	181.
38.	Frag. rim; greyish-brown ware; wet-sm. int. and probably ext.	181.
39.	Frag. neck; buff ware; grey core; lt. red wash ext.	181.



JERICHO 1935. POTTERY RIMS AND DECORATION FROM THE LOWER E.B. LEVELS IN STRIPS 1-5.



JERICO, 1935. POTTERY FROM THE LOWER E.B., CHALCOLITHIC AND NEOLITHIC LEVELS

Jericho, 1935

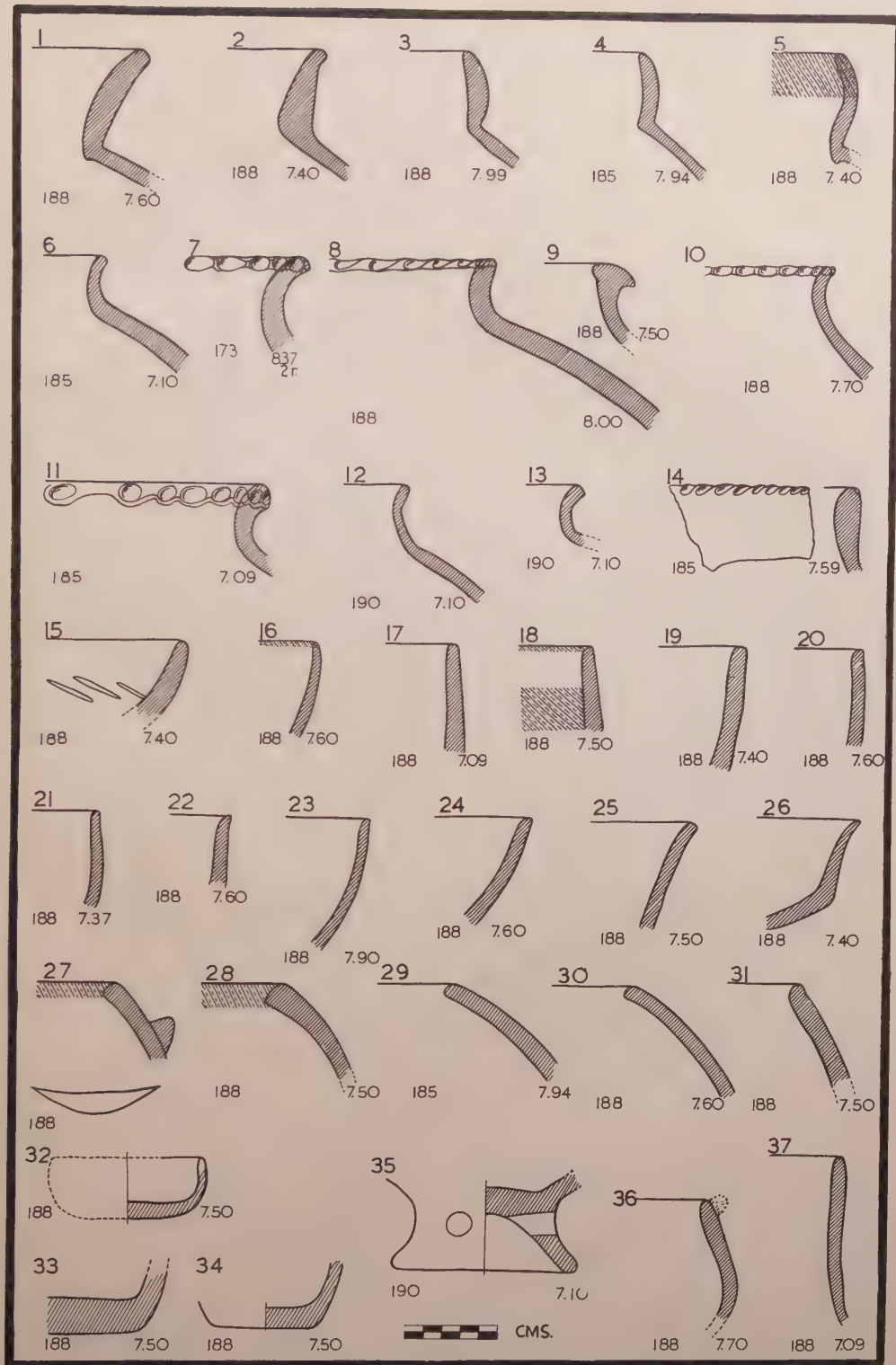
TABLE XII. KIM FRAGMENTS FROM CHALCOLITHIC LEVELS

188	1. and 2. Frag. of necks; brown ware; very gritty; slip-sm.; orange slip int. and rim.
188	3. Neck of jar; brown ware; wet-sm. int.; red slip-sm. ext.
185	4. Neck of jar; brown ware; slip-sm. int.; dark brown slip-sm. ext.
188	5. Neck of jar; greyish brown ware; gritty; wet-sm. painted red band ext.
188	6. Neck of jar; thick on rim.
188	8. Frag. jar; brick w. gritty; slip-sm. ext. and just inside rim; dec. rim.
188	9. Rim frag.; grey ware; wet-sm.
188	10. Rim frag.; red brick ware; wet-sm.; dec. on rim.
185	11. Neck of jar; brown ware; slip-sm. dec. on rim.
190	12. Neck of jar; coarse brick ware; very gritty; wet-sm.
185	13. Rim frag.; brown ware; top of the notched pattern.
188	14. Bowl; red slip-sm. ext. and int.; incised notches int.
188	15. Rim frag.; brown ware; red slip-sm. ext. and just inside rim.
188	17. Rim frag.; brown ware; wet-sm.; blackened ext. int.; narrow rim with red

JERICHO, 1935.

PLATE XL. RIM FRAGMENTS FROM CHALCOLITHIC LEVELS.

No.		
1	and 2. Frags. of necks; brown ware; very gritty; slip-sm.; orange slip int. and rim.	188.
3.	Frag. neck; lt. brown ware; wet-sm. int.; red slip-sm. ext.	188.
4.	Frag. neck; lt. brown ware; slip-sm. int.; dark brown slip-sm. ext.	185.
5.	Frag. neck; greyish brown ware; gritty; wet-sm.; painted red band ext.	188.
6.	Frag. neck of jar; lt. brick ware; wet-sm.; dec. finger impressions on rim.	188.
8.	Frag. jar; brick ware; very gritty; slip-sm. ext. and just inside rim; dec. rim.	188.
9.	Rim frag.; lt. grey ware; wet-sm.	188.
10.	Rim frag.; red brick ware; wet-sm.; dec. on rim.	188.
11.	Frag. neck of jar; brown ware; slip-sm.; dec. on rim.	185.
12.	Frag. neck of jar; coarse brick ware; very gritty; wet-sm.	190.
14.	Frag. rim; brick ware; wet-sm.; top of rim notched pattern.	185.
15.	Frag. bowl; red slip-sm. ext. and int.; incised notches int.	188.
16.	Rim frag.; brown ware; red slip-sm. ext. and just inside rim.	188.
17.	Rim frag.; brown ware; very gritty; wet-sm.; blackened ext.	188.
18.	Rim frag.; brown ware; red slip-sm. int.; creamy slip with red painted bands ext.	188.
19	and 23. Rim frags.; lt. brown ware; gritty; red slip-sm. ext. and int.	188.
20.	Rim frag.; brown ware; red slip-sm. int. and ext.; rim horiz. bnd.	188.
21.	Rim frag.; brown ware; lt. red slip-sm. ext. and int.	188.
22.	Rim frag.; brown ware; brown slip-sm.	188.
24.	Rim frag.; brown ware; red slip-sm. ext. and int.	188.
25.	Rim frag.; brown ware; lt. red slip-sm. ext. and int.	188.
26.	Frag. bowl; brown ware; gritty; red slip-sm. and polished ext. and int.	188.
27.	Frag. h.m. pot; ledge handle; lt. brown ware; gritty; wet-sm.; rim painted red.	188.
28.	Frag. h.m. pot; grey brown ware; gritty; wet-sm.; rim painted dark brown.	188.
29.	Frag. h.m. pot; brown ware; gritty; wet-sm.	185.
30.	Frag. h.m. pot; brown ware; gritty; wet-sm.; smoke-blackened ext.	188.
31.	Frag. h.m. pot; red brick ware; very gritty; wet-sm.; blackened ext.	188.
32.	Bowl; lt. brick ware; red slip-sm. int. and ext.	188.
33.	Frag. bottom of pot; greyish-brown ware; mat impression on base.	188.
34.	Bottom of pot; brown ware; traces of red slip-sm. ext.	188.
35.	Frag. pedestal; pierced; brown ware; red slip ext. and on part int.	190.
36.	Frag. bowl; brick ware; red slip-sm.; horiz. bnd. int.; orange slip bnd. ext.	188.
37.	Frag. rim; grey ware; slip-sm.	188.



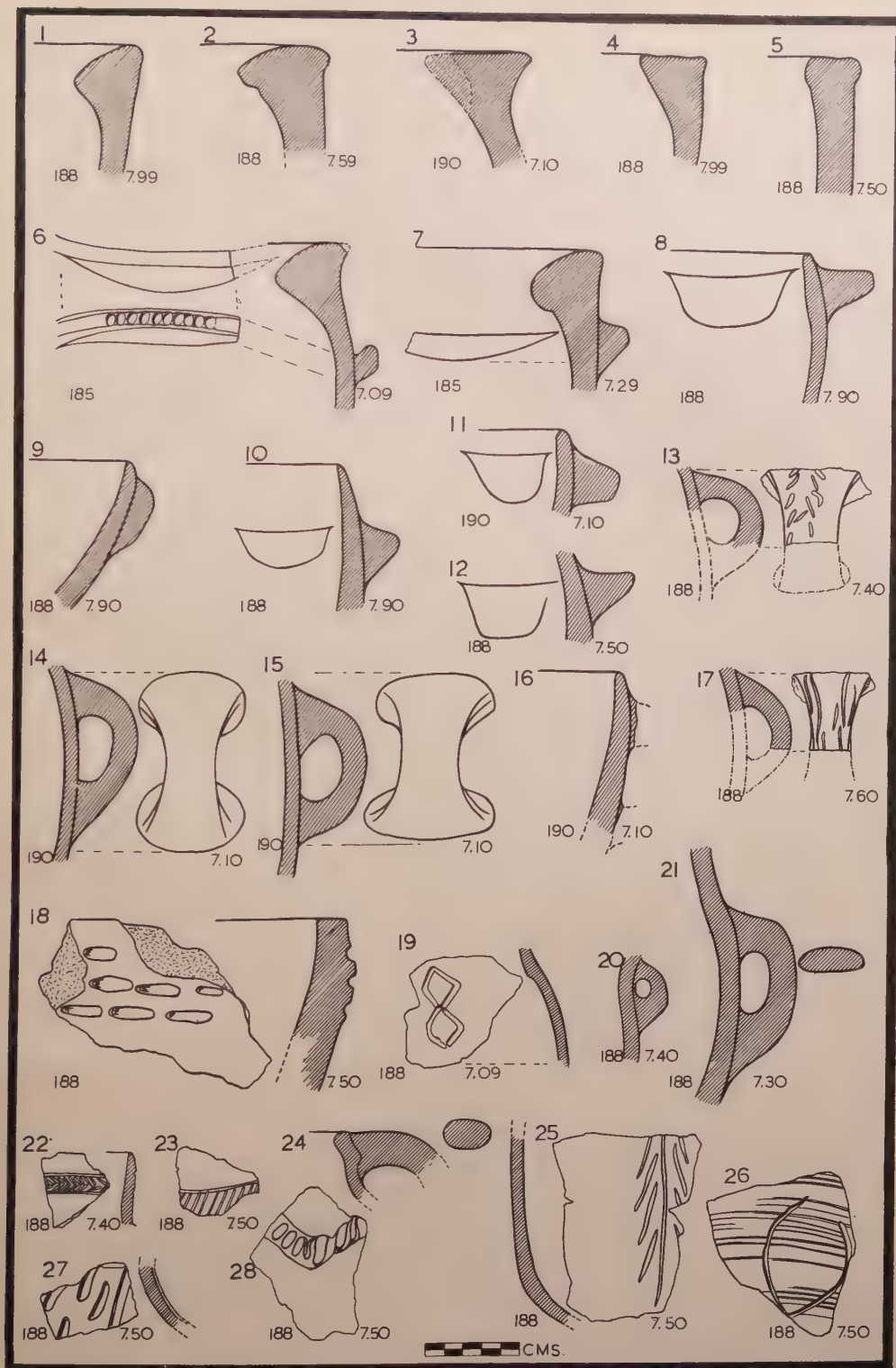
JERICHO, 1935. CHALCOLITHIC RIMS, ETC., MOSTLY FROM AREA 188, IN STRIP 2.

JERICHO, 1935.

PLATE XLI. FRAGMENTS OF JARS FROM CHALCOLITHIC LEVELS.

No.

- 1 and 2. Rim frags. of thick pot; brown ware; very gritty; slip-sm. ext. and int.; rim red slip. 188.
3. Rim frag. of thick pot; brown ware; slip-sm. int. and ext. 190.
4. Rim frag. thick jar; brown ware; slip-sm. int. and ext. 188.
5. Rim frag. thick jar; brown ware; gritty; slip-sm. int. and ext. 188.
6. Frag. rim and ledge handle; brick ware; very gritty; slip-sm.; handle dec. notches. 188.
7. Rim frag. with narrow ledge handle; brown ware; red slip ext. and rim; wet-sm. int. 188.
8. Frag. bowl with ledge handle; drab ware; slip-sm. ext. and int. 188.
9. Frag. bowl with knob handle; greenish ware; slip-sm. 188.
10. Frag. with elementary ledge handle; brown ware; grey core; slip-sm. 188.
12. Frag. knob handle; brick ware; greyish brown slip-sm. 188.
13. Frag. handle; lt. brick ware; gritty; traces red slip; dec. notches. 188.
14. Handle; brick ware; wet-sm. 190.
15. Handle; brown ware; gritty; traces of smeared red paint. 190.
16. Frag. with part of handle; brick ware; lt. grey core; slip-sm. 190.
17. Frag. handle; lt. brick ware; traces lt. brown slip; dec. incised lines. 188.
18. Frag. jar; lt. brick ware; grey core; slip-sm. int.; greenish slip ext. 188.
19. Frag. of shoulder; red brick ware; very gritty; wet-sm.; dec. incised design. 188.
20. Handle; brown ware; red slip-sm. 188.
21. Handle; brown ware; yellowish slip. 188.
22. Frag. rim; brown ware; red slip-sm. ext. and int.; dec. incised pattern. 188.
23. Frag. brown ware; slip-sm.; dec. incised lines, ext. 188.
25. Frag. shoulder; lt. brick ware; scrabbled; well fired; dec. incised lines. 188.
26. Frag. lt. red ware; scrabbled; well fired; dec. incised lines ext. 188.
27. Frag.; brick ware; slip-sm. ext.; dec. wide incised notches. 188.
28. Frag. jar.; grey ware; coarse grits; dec. raised band; crude. 188.

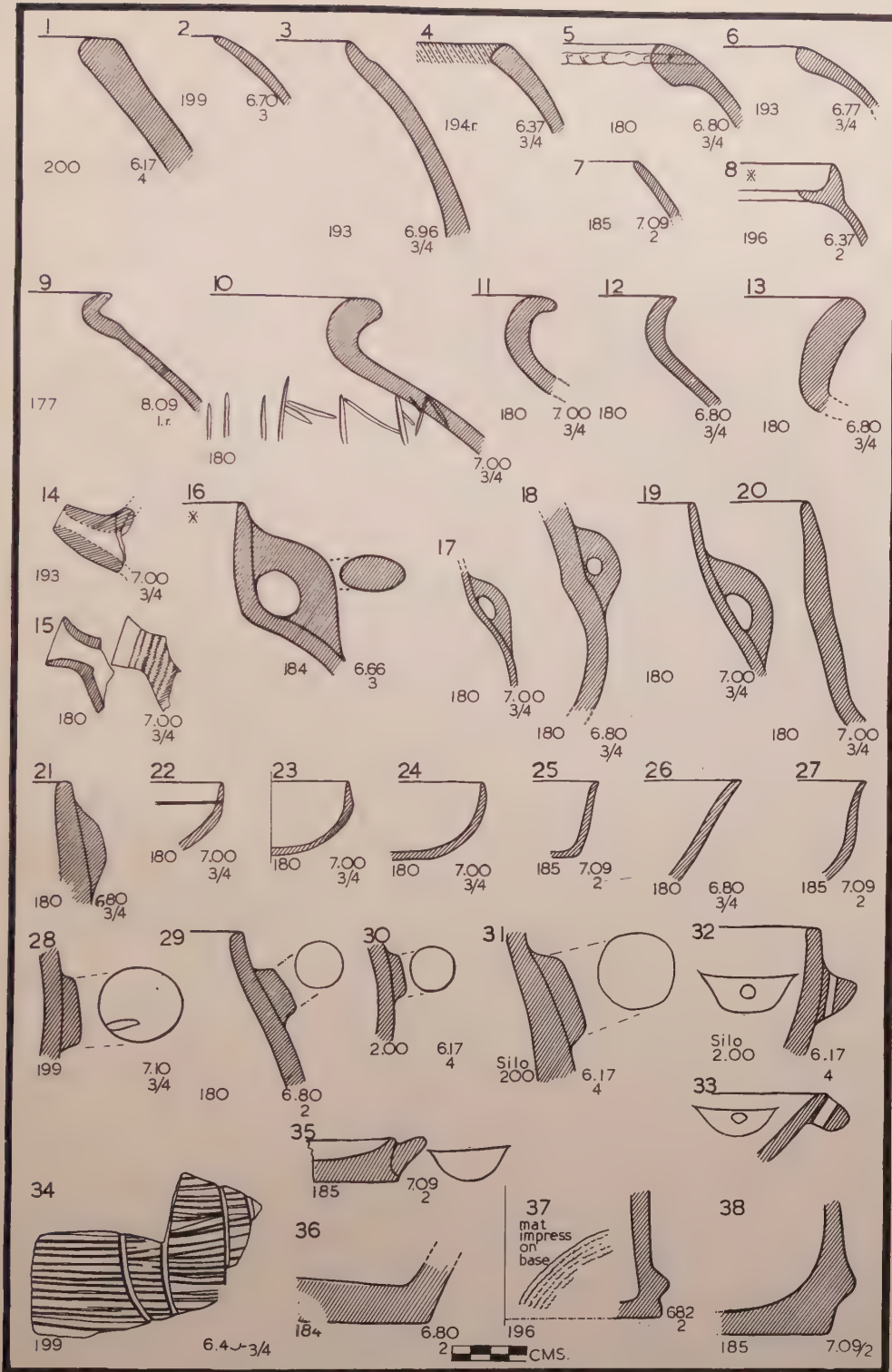


JERICHO, 1935. CHALCOLITHIC JAR RIMS, HANDLES AND DECORATION, MOSTLY FROM AREA 188.

JERICHO, 1935.

PLATE XLII. CHALCOLITHIC FRAGMENTS FROM LOW LEVELS IN STRIPS 1-4.

No.		
1.	Frag. rim large jar; brick ware; slip-sm.	200.
2.	Frag. h.m. pot; brown ware; polished slip ext.; grey int.	199.
4.	Frag. h.m. pot; greyish-brown ware; wet-sm.; partly orange; slip-sm.	192-194.
5 and 6.	Frag. h.m. pot; greyish-brown ware; grits; wet-sm.; blackened ext.	180 and 193.
7.	Frag. h.m. pot; greyish-brown ware; red slip-sm.; blackened ext.	185.
8.	Frag. rim; buff ware; gritty; rim has brown slip.	196.
9.	Frag. rim; brick ware; wet-sm.	177.
10.	Top of jar; greyish-brown ware; gritty; red slip-sm.; dec. incised notches.	180.
11.	Frag. neck of jar; brick ware; grey core; wet-sm.	180.
12.	Frag. neck; lt. brown ware; grey ext.; wet-sm.	180.
13.	Frag. neck of jar; greyish brown ware; traces red slip-sm.	180.
14.	Spout; greyish-brown ware; red-brown; slip-sm. and polished ex.	193.
15.	Spout; lt. brick ware; some grits; dec. dark red painted lines.	180.
16.	Handle of jug; lt. brick ware; drab slip-sm. ext. and int.	184.
17.	Handle; lt. brown ware; red-brown slip-sm.; polished ext.	180.
18.	Handle; greyish-brown ware; few grits; slip-sm.; greenish tinge.	180.
19.	Rim and handle; brown ware; reddish-brown slip-sm. ext.; polished.	180.
20.	Frag. neck; brown ware; slip-sm. int. and ext.	180.
21.	Rim frag. with knob handle; buff ware; slip-sm.	180.
22.	Frag. bowl; lt. brick ware; slip-sm. int. and ext.; incised line below rim.	180.
23.	Frag. bowl; lt. brick ware; slip-sm. ext.; worn int.	180.
24.	Frag. bowl; grey-brown ware; wet-sm.	180.
25.	Frag. bowl; buff ware; reddish-brown slip-sm. ext. and int.	185.
26.	Frag. bowl; lt. brick ware; wet-sm.	180.
27.	Frag. bowl; buff ware; slip-sm. ext. and int.	185.
28.	Knob handle; brown ware; red slip-sm.; incised notch on knob.	199.
29.	Rim frag. with knob handle; brick ware; slip-sm. ext.	180.
30.	Knob handle; brown ware; slip-sm.	200.
31.	Knob handle; brick ware; grey core; slip-sm. crudely made.	Silo in 200.
32.	Pierced ledge handle; buff ware; slip-sm.; worn int.	Silo in 200.
33.	Rim frag. with pierced ledge handle; brick ware; wet-sm.; grey ext.	184.
34.	Frag. scabbled; lt. brick ware; large grits; dec. incised line.	199.
35.	Bottom frag. with ledge handle; brown ware; slip-sm.	185.
37.	Bottom frag. of pot; buff ware; red slip ext.; roughly made; ledge round pot near bottom; mat impression on base.	196.
38.	Bottom frag. of pot; drab ware; red slip-sm. ext. and int.; ledge round pot near bottom.	185.



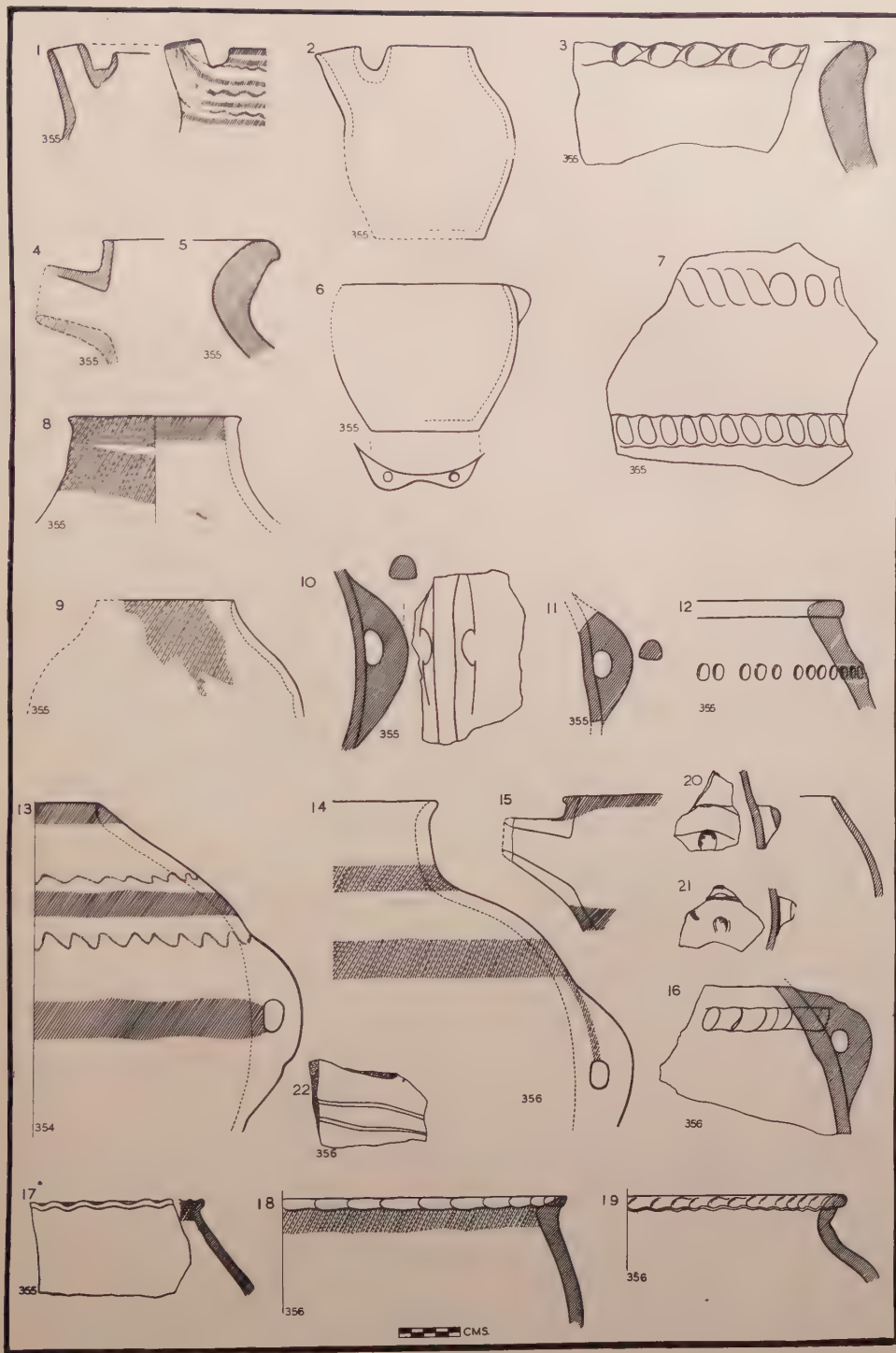
JERICHO, 1935. CHALCOLITHIC FRAGMENTS FROM LOW LEVELS IN STRIPS 1-4.

1. Frag. pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.355.
2. Top and bottom of pot; brown ware; very gritty; slip-sm. ext. and inside neck. P.M. 1.356.
3. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.357.
4. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.358.
5. Frag. large jar; brown ware; gritty; wet-sm. ext. rim. P.M. 1.359.
6. Bowl; pierced horiz. double ledge handle; in brick ware; slip-sm. ext. P.M. 1.360.
7. Frag. large jar; brown ware; gritty; wet-sm.; dec. 2 raised bands. P.M. 1.361.
8. Rim neck jar; brick ware; very gritty; painted red bands ext. and top rim. P.M. 1.362.
9. Frag. pot; in brick ware; slip-sm.; crudely painted with red. P.M. 1.363.
10. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.364.
11. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.365.
12. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.366.
13. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.367.
14. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.368.
15. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.369.
16. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.370.
17. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.371.
18. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.372.
19. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.373.
20. Pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M. 1.374.

JERICHO, 1935.

PLATE XLIII. CHALCOLITHIC POTTERY FROM TOMBS 354-5-6.

- No.
1. Frag. pot with spout; brown ware; slip-sm.; dec. painted red lines. P.M.J.355.
2. Top and bottom of pot; brown ware; very gritty; slip-sm. ext. and inside neck. P.M.J.355.
3. Rim. frag. heavy jar; brown ware; gritty; wet-sm.; dec. finger impressions. P.M.J.355.
4. Frag. bowl with spout; brick ware; slip-sm.; red band int. and ext. rim. P.M.J.355.
5. Frag. large jar; brown ware; gritty; wet-sm. P.M.J.355.
6. Bowl; pierced horiz. double ledge handle; lt. brick ware; slip-sm. ext. P.M.J.355.
7. Frag. large jar; brown ware; gritty; wet-sm.; dec. 2 raised bands. P.M.J.355.
8. Rim frag. jar; brick ware; very gritty; painted red bands ext. and top rim. P.M.J.355.
9. Frag. pot; lt. brick ware; slip-sm.; crudely painted with red. P.M.J.355.
10. Vert. lug handle; brown ware; slip-sm. ext. P.M.J.355.
11. Vert. lug handle; brown ware; wet-sm. P.M.J.355.
12. Frag. rim large jar; brick ware; gritty; slip-sm. int. and ext.; dec. band below rim. P.M.J.355.
13. Part of jar; h.m.; lug handle; lt. brown ware; slip-sm.; dec. red bands. P.M.J.354.
14. Part of jar; lug handle; lt. brown ware; slip-sm. ext. and int.; 2 red bands. L.356.
15. Rim frag. of bowl with spout; lt. brown ware; gritty; wet-sm.; dec. red paint. L.356.
16. Frag. pot with lug handle; brown ware; wet-sm.; finger impressions on handle and on band dec. L.356.
17. Rim frag.; lt. brick ware; wet-sm.; red band inside rim. P.M.J.355.
20. Frag. pot with horiz. ledge handle pierced; brown ware; traces red slip. P.M.J.355.
21. Frag. pot with horiz. ledge handle pierced; brown ware; slip-sm.; dec. red paint. P.M.J.355.
22. Frag. pot; brown ware; gritty; slip-sm. int. and ext.; dec. brown paint and 2 raised bands. L.356.



JERICHO, 1935. CHALCOLITHIC POTTERY FROM TOMBS 354-6

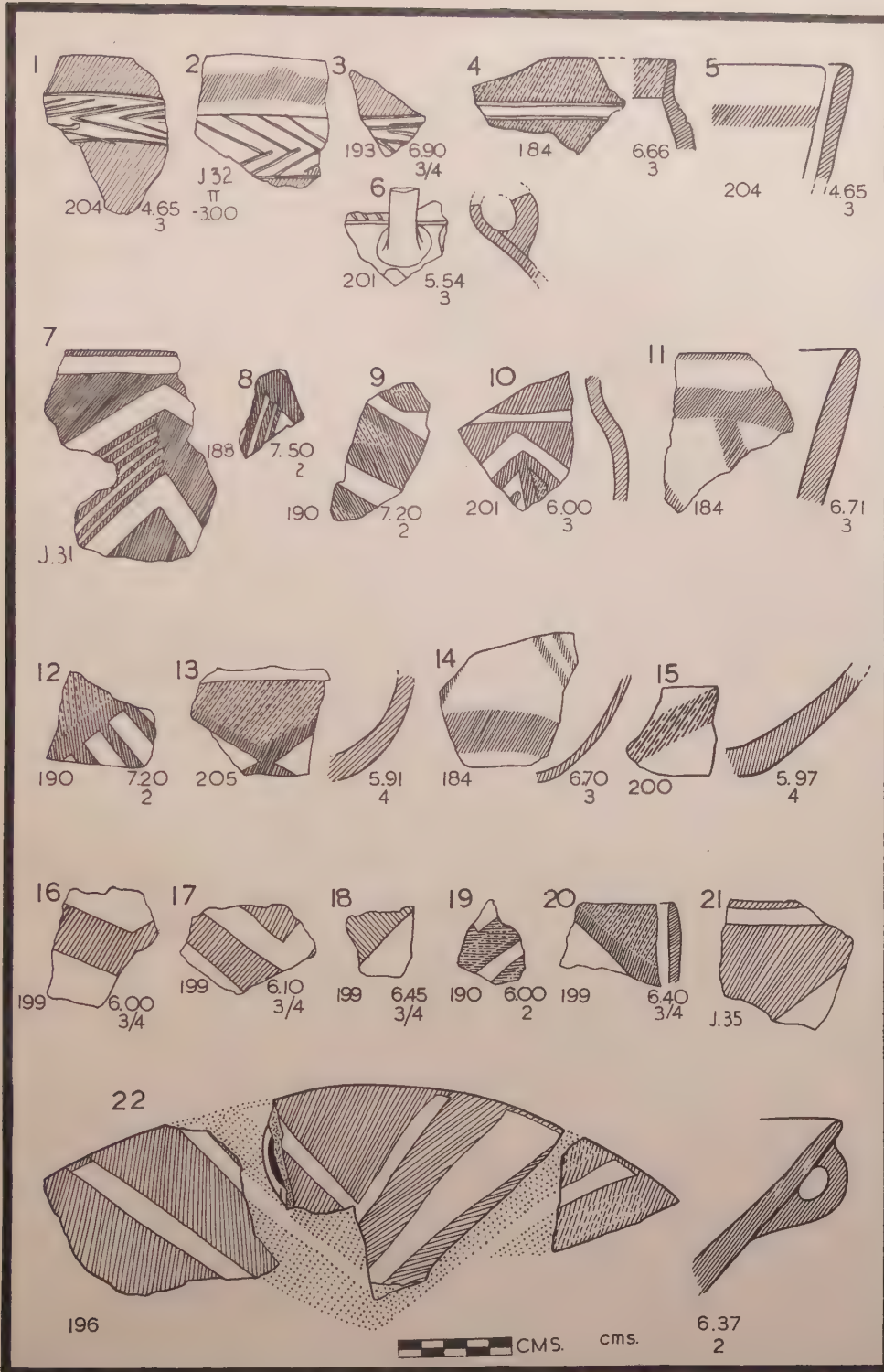
1. Frag. of jar; brown ware; red slip-sm. ext. and int.; incised dec. filled with white. 204
2. Frag. rim; brown ware; gritty; red slip-sm. ext. and int.; dec. incised lines ext. 131
3. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 102
4. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
5. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
6. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
7. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
8. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
9. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
10. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
11. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
12. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
13. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
14. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
15. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
16. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
17. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
18. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
19. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
20. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
21. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101
22. Frag. rim; brown ware; red slip-sm. ext. and int.; incised lines ext. 101

JERICHO, 1935.

PLATE XLIV.

No.

1. Frag. of jar; brown ware; red slip-sm. ext. and int.; incised dec. filled with white. 204.
2. Frag. rim; brown ware; gritty; red slip-sm. ext. and int.; dec. incised lines ext. J.31.
3. Frag. red ware; many grits; red slip ext; dec. incised lines ext. 193.
4. Frag. rim; lt. brick ware; grey core; purplish slip ext. and rim int.; horiz. incised lines. P.M.J.184.
5. Frag. rim; brown ware; reddish-brown slip int.; cream slip and red paint ext. 204.
6. Frag. handle; brown ware; red slip-sm. ext.; dec. incised notches. 201.
7. Frag. buff ware; cream slip with bright red painting ext. J.31.
8. Frag. lt. brick ware; cream slip; red painted dec. ext.; slip int.; traces red. 188.
9. Frag. brick ware; cream slip; brown and lt. brown painted dec. bnd. 190.
10. Frag. lt. brick ware; cream slip ext. with shiny brown painted dec. P.M.J.201.
12. Frag. buff ware; cream slip with orange and brown painted dec. ext. 190.
13. Frag. lt. brown ware; lt. red slip int.; cream slip ext.; brown and lt. brown dec. ext. 205.
14. Frag. lt. brick ware; cream slip; brown painted dec. 184.
15. Frag. brown ware; slip-sm. ext.; brown painted dec. P.M.J.200.
16. Frag. brick ware; much grit; cream slip; brown painted dec. bnd. 199.
17. Frag. buff ware; cream slip; dark brown painted dec. ext.; bnd. 199.
18. Frag. buff ware; cream slip with reddish-brown painted dec. ext. bnd. 199.
19. Frag. buff ware; some grit; orange slip; darker orange and reddish paint ext. 190.
20. Frag. rim; grey ware; cream slip; brown and lt. brown painted dec. ext 199.
21. Frag. rim; few grits; cream slip; brown painted dec. Provenance doubtful.
22. Frags. of dish; brown ware; brown slip ext.; yellowish slip bnd., with brown painted dec. int. P.M.J.196.



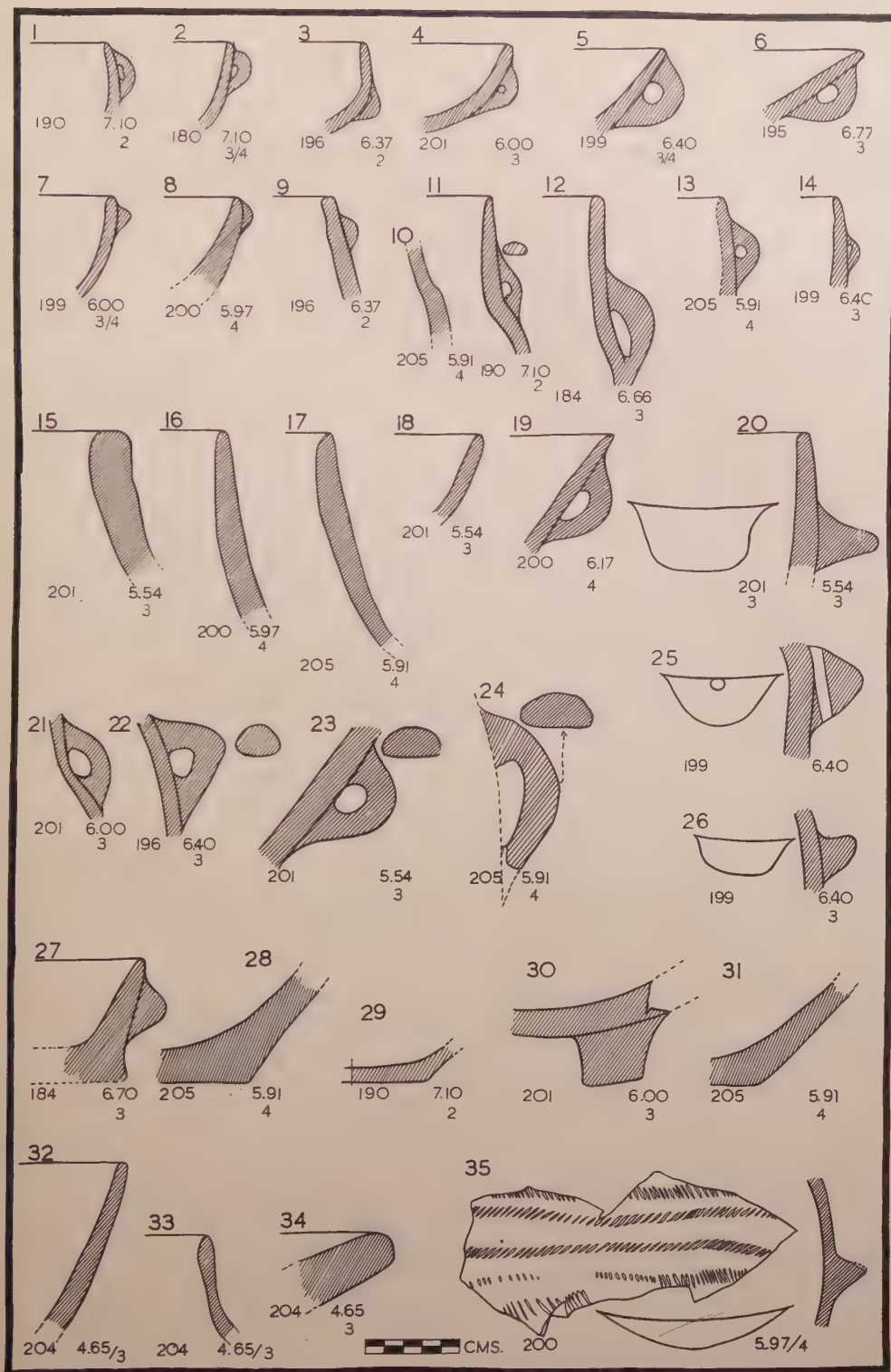
JERICO, 1935. DECORATED POTTERY FROM THE UPPER NEOLITHIC LEVELS.

1. Handle and rim, H. brown ware; reddish-brown slip ext.; 180.
2. Handle and rim, H. dark ware; red brown slip ext. and int.; 190.
3. Rim and handle, black ware; slip-sm. ext. and int.; 201.
4. Flag, bowl, brown ware; red slip-sm. ext. and int.; worn int.; 199.
5. Handle and rim, brown ware; wet-sm. ext.; H. red slip-sm. int.; 199.
6. Flag, rim with knob handle; H. dark ware; red slip-sm. ext.; 199.
7. Flag, rim and knob handle; greyish-brown ware; slip-sm.; 199.
8. Flag, shoulder; brown ware; red slip-sm. ext.; 205.
9. Flag, shoulder; greyish brown ware; brown slip and ext.; 199.
10. Flag, with handle; buff ware; brown slip; bad. ext.; int. worn; 199.
11. Flag, rim with handle; brown ware; H. red slip-sm. ext.; 199.
12. Flag, rim with handle; brown ware; very roughly made; 199.
13. Flag, rim; brown ware; grey core; slip-sm. ext. and int.; much worn; 199.
14. Flag, rim; buff ware; slip-sm. ext. and int.; 199.
15. Flag, rim; buff ware; grey core; slip-sm. ext. and int.; 199.
16. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
17. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
18. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
19. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
20. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
21. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
22. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
23. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
24. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
25. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
26. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
27. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
28. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
29. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
30. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
31. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
32. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
33. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
34. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
35. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
36. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
37. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
38. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
39. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
40. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
41. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
42. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
43. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
44. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
45. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
46. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
47. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
48. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
49. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.
50. Flag, rim and plain body; brown ware; slip-sm. ext. and int.; 199.

JERICHO, 1935.

PLATE XLV.

1. Handle and rim; lt. brown ware; traces reddish-brown slip ext.;
cream slip int. 190.
2. Handle and rim; lt. brick ware; red brown slip ext. and int. 180.
3. Rim and handle; brick ware; slip-sm. ext. and int. 196.
4. Frag. bowl; brown ware; red slip-sm. ext. and ?int.; worn int. 201.
5. Handle and rim; brown ware; wet-sm. ext.; lt. red slip-sm. int. 199.
6. Frag. with handle; brown ware; red slip-sm.; bnd. irregularly. 195.
7. Frag. rim with knob handle; lt. brick ware; red slip-sm. ext.;
slip-sm. int. 199.
9. Frag. rim and knob handle; greyish-brown ware; slip-sm. 196.
10. Frag. shoulder; brown ware; red slip-sm. ext. 205.
11. Frag. shoulder; greyish-brown ware; brown slip bnd. ext.;
slip-sm. int. 190.
12. Frag. with handle; buff ware; brown slip; bnd. ext.; int. worn. 184.
13. Frag. rim with handle; brown ware; lt. red slip-sm. ext. 205.
14. Frag. rim with handle; brown ware; very roughly made. 199.
15. Frag. rim; brown ware; grey core; slip-sm. ext. and ?int.; much
worn. 201.
16. Frag. rim; buff ware; slip-sm. ext. and int. 200.
17. Frag. rim; buff ware; grey core; slip-sm.; ext. and int. 205.
18. Frag. rim; brown ware; wet-sm. int.; red brown slip-sm. ext. 201.
20. Frag. rim and plain ledge handle; brown ware; slip-sm. int. and
ext. 201.
21. Frag. handle; greyish-brown ware; wet-sm. 201.
22. Frag. handle; brown ware; grey-brown slip-sm. 196.
23. Frag. handle; lt. brown ware; lt. red slip-sm. int.; wet-sm. ext.
and ?red slip. 201.
24. Frag. handle; brown ware; slip-sm. 205.
25. Pierced ledge handle; brick ware; slip-sm. 199.
26. Frag. ledge handle; grey-brown ware; slip-sm.; poor finish. 199.
27. Frag. with knob handle; brown ware; slip-int.; wet-sm. ext. 184.
28. Frag. bottom; greyish-brown ware; red slip-sm. ext. and ?int. 205.
29. Frag. bottom of jar; brick ware; gritty; red slip-sm. int.; mat
impression on base. 190.
30. Frag. knob-foot; brown ware; wet-sm. 201.
31. Frag. bottom; brown ware; wet-sm. ext.; lightly red slip-sm. int. 205.
32. Frag. rim; brown ware; slip-sm. ext. and int. 204.
33. Frag. rim; poorly baked clay; brick ware; grey slip-sm. int. 204.
34. Frag. rim; brown ware; red slip-sm. int.; wet-sm. ext. 204.
35. Frag. of jar with ledge handles; red brick ware; dec. incised
notches. P.M.J. 200.



JERICOHO, 1935. POTTERY FRAGMENTS FROM THE UPPER NEOLITHIC LEVELS.

Stratifications of JERICHO					Other sites: deposits compared				
level	area	period	buildings	B.C. depth metres	Jericho periods	Megiddo stages	Tell Mersin	Beisan building levels	Egypt dynasty
	PALACE AREA		Block house	1,000					
		Iron Age i [L.B.A.ii]		2.00	I.A.i		B. 3	VI	19 th.
		Late Bronze Age i.	house & walls	1,400	L.B.A.i		C. 2	VII	18 th.
				1,500			C. i	IX	
		Middle Bronze Age ii.	Palace store-rooms Hyksos rampart	1,500 1,700	M.B.A.ii		D	X.A	Hyksos
			Buildings below Palace and N.E. corner of City	2,500			E	X.B	
	N.E. CORNER OF CITY	Middle Bronze Age i.		1,900	M.B.A.i		F-G	XI	13 th.
12		? J. E.B.A.iii		2,000	? E.B.A.iii	tombs	H	XI	12 th.
11		Early Bronze Age ii.	houses & main N. wall. Tomb A	200	E.B.A.ii	1-2	I-J	XII	11 th.
				2,500		3		XIII	4th 6th
10				2,500	Tr.	4		XIV	3rd.
9		Early Bronze Age i.	houses & W.W.	200	E.B.A.i	5	Ghassoul		1st. 2nd.
		Tr. (rounded houses)		3,000	Tr.	6		XV	
8				3,000		7	IV	XVI	
		Chalcolithic	orthostats & pits	3,400	Chal.		III	XVII	
7				3,400			II	XVIII	Pre-Dyn.
6		Neolithic ii.	floors statues pottery	2,000	Neo. ii		I		
5			Tahounian flints ii	4,000					
4				??					
3		Neolithic i.	floors stone utensils Tahounian ii flints	5,000 to 4,000	Neo. i.				
2									
+1									
0		? Mesolithic	Microoliths	2,000					
-1									

JERICHO, 1935. STRATIFICATIONS OF JERICHO TENTATIVELY CORRELATED WITH OTHER SITES.

JERICHO, 1935.

PLATE XXXIX. POTTERY FROM LOWER E.B. CHALCOLITHIC AND NEOLITHIC LEVELS.

- | | | | |
|-----|---------------|--|---------------|
| No. | | | |
| 1. | Cat. No. 379. | Jar frag.; brick ware; wet-sm.; fire blackened. | P.M.J.178. |
| 2. | Cat. No. 378. | Jar; brick ware; red slip-sm.; lug handles below shoulder. | P.M.J.178. |
| 3. | Cat. No. 375. | Jar; brick ware; wet-sm.; thumb-spout handle broken; dec. raised band. | P.M.J.170. |
| 4. | | H.m. pot; greyish-brown ware; gritty; wet-sm.; contained bones and food. | 144. |
| 5. | Cat. No. 362. | Juglet; red brick ware; slip-sm.; traces of burnishing. | H.M.G. 161. |
| 6. | Cat. No. 376. | Cup; brick ware; wet-sm.; coarse. | L.172. |
| 7. | Cat. No. 365. | Jug; lt. brick ware; thick calcium deposit ext.; 2 lug handles. | L.163. |
| 8. | Cat. No. 359. | Jug; greyish-drab ware; gritty. | H.M.G. 148/9. |
| 9. | Cat. No. 363. | Dish; drab ware; gritty; wet-sm; ?wh. finished. | 161. |
| 10. | Cat. No. 364. | Dish; lt. brick ware; red slip-sm. bnd. ext. and int. | H.M.G. 161. |
| 11. | Cat. No. 374. | Dish frag.; buff ware; wet-sm. int.; brown slip-sm. ext.; lug handle. | P.M.J.169. |
| 12. | Cat. No. 386. | Jar; lt. brick ware; few large grits; slip-sm.; 4 knob handles. | P.M.J.188. |
| 13. | Cat. No. 385. | Bowl frag.; brick ware; slip-sm. ext. and int.; dec. incised horiz. lines. | P.M.J.188. |
| 14. | | H.m. pot frag.; yellowish-green ware; red core; wet-sm.; smoke blackened. | 188. |
| 15. | | Jar frag.; buff ware; slip-sm.; hand m.; two loop handles. | 188. |
| 16. | | Bowl frag.; brick ware; very gritty; slip-sm.; hand m.; incised marks. | L.185. |
| 17. | Cat. No. 393. | Bowl; lt. brick ware; dec. painted red lines int.; red slip ext. | L.194. |
| 18. | | Jar; base missing; greyish-brown ware; combed surface; incised dec. | 185. |
| 20. | | Frag. pottery; greyish-brown ware; wide grey core; much worn; light in weight. | 180. |
| 21. | Cat. No. 401. | Bowl; buff ware; red slip-sm. ext.; much worn int.; one knob handle. | P.M.J.199. |



JERICO, 1935.

AREA AND PROGRESS OF THE EXCAVATIONS IN THE NE. CORNER
WITHIN THE CITY WALL.



JERICO, 1935.

- a. POTTERY VESSELS IN FLOOR OF ROOM 126 : LEVEL 10.70.
- b. LOGS OF TIMBER ON FLOOR OF ROOM 162 : LEVEL 8.50.
- c. ORTHOSTATIC WALL (8-06) ; CIRCULAR FLOOR (8-30) ; AND GRAIN PITS (7-27) IN AREA 188.



JERICO, 1935.

- a. FLOOR OF POTSHERDS IN ROOM 169: LEVEL 8.45 (4).
- b. HARD FLOOR IN ROOM 172: LEVEL 7.81 (3).
- c. STONE FLOORING IN ROOM 179: LEVEL 7.95 (3).



JERICO, 1935.

- a. BRICKWORK OF HOUSE WALL 147: LEVEL 9.49 (5).
- b. BRICKWORK OF CIRCULAR ROOM 194: LEVEL 6.97 (4).
- c. BRICKWORK OUTSIDE AND BELOW CITY WALL B. IN NE. CORNER (7).



JERICHO, 1935.

a. ROUNDED-HOUSE SYSTEM, 173-5-7: LEVELS APPROX. 8-40.

b. BACK: ROUND HOUSES (8-40); BELOW: NEOLITHIC HOUSE FLOOR 202 (6-50);
WITH STATUE 190 (RT.); FOREGROUND: BROKEN NEOLITHIC FLOORS 205
(5-14 AND 5-65); WITH STATUE 195 (6-36) 3 (RT.),



a



b



c

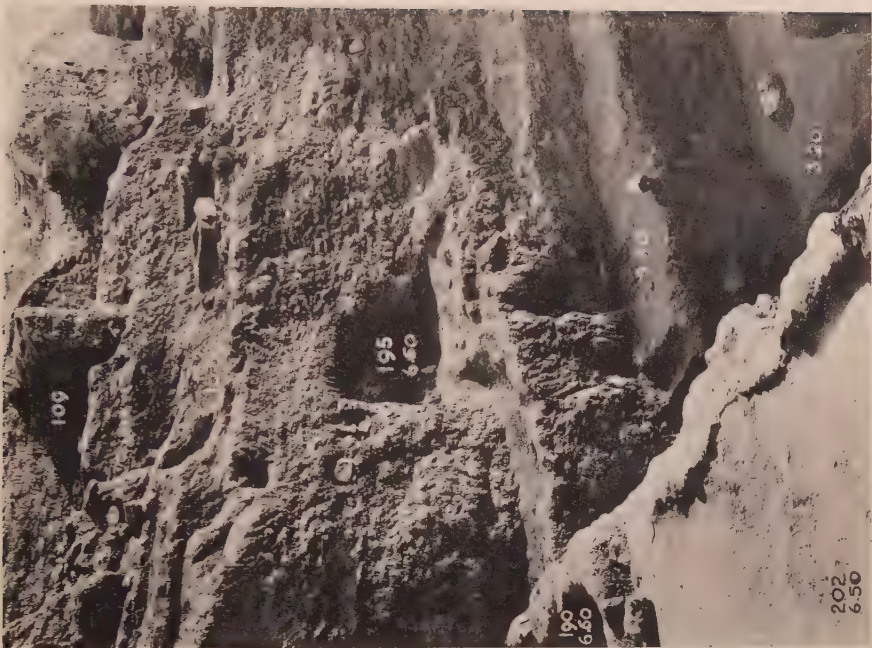
JERICO, 1935.

a, b. STATUE FRAGMENTS 190 AND 195 AS FOUND.

c. NEOLITHIC FLOOR 208 WITH POST-HOLES (4-40) AND CHILD BURIAL (5-00).



JERICHO, 1935.
NEOLITHIC STATUE HEAD (HEIGHT 8 INCHES): FRONT VIEW AND PROFILE.
AREA 195: LEVEL 659-636 (3).



a

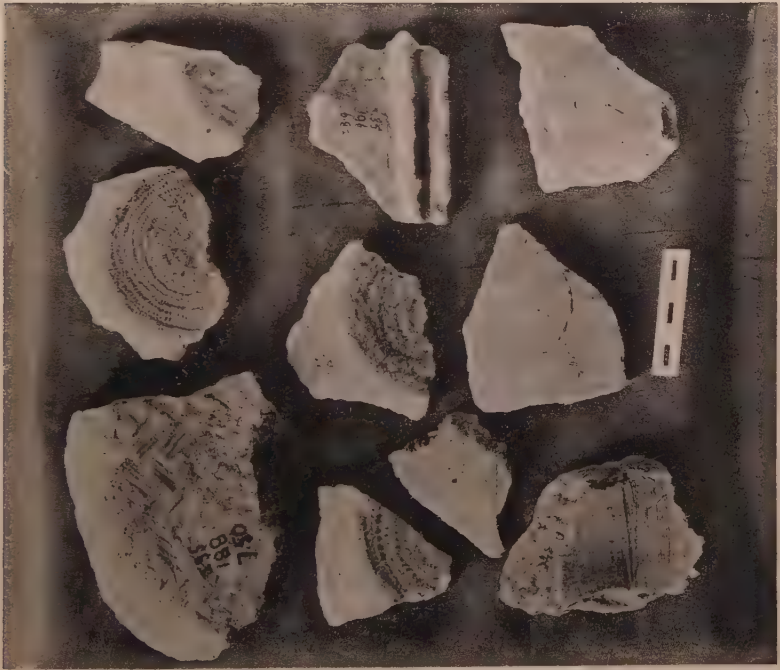
b

JERICHO, 1935.

a. THIRD NEOLITHIC FLOOR IN 208 WITH TWO POST-HOLES: LEVEL 320.
b. SECTIONAL VIEW SHOWING AT THE TOP CITY WALL OF E.B. 1 (11-00); LEFT: FLOOR 202 (6-50);
AND RIGHT: THIRD FLOOR OF 208 (3-20).



b



a

JERICHO, 1935.
a. CHALCOLITHIC POTTERY FRAGMENTS.
b. NEOLITHIC POTTERY FRAGMENTS.

show unpainted bands with incised ornament, rude chevrons (Pl. XLIV, 1, 2, 3 and 4).

Four other classes of decorated unburnished ware leave the impression of being something different and probably later, which impression is to a degree confirmed by the stratification.

The one class (*f*) is a coarse ware with washy red paint thinning to orange applied in streaky, splotchy designs. The clay is hard, gritty, light brown in colour, and not well smoothed. Among the shapes are hole-mouthed jars (Pl. XL, 29), vases with a spout cylindrical neck, and a kind of stand—a bowl, that is, with no bottom, standing on a high foot (Pl. XL, 1).¹ Occasionally incision is found (Pl. XLI, 25). Most of the sherds are from large vases and the lowest mark is 6.30 m.

The class (*h*) has linear designs in thin lines of red-brown matt paint on hard buff clay with a roughish surface. The vases are small and include bowls and one juglet (Pl. XXXVIII, 19-23). The lowest mark is 6.70 m.

(*g*) A small class with a red glaze paint covering apparently the whole vase. Two sherds are from bowls with marked carination. One spout was found (Pl. XLII, 14).

And lastly, (*i*), there are some sherds covered with a matt red paint. How they differ from the monochrome unburnished of class (*d*) is hard to put into words. A more sophisticated colour in the paint and a different treatment of the surface is the nearest I can come to.

Among them are four bases of vessels rather of the flower-pot shape which bear on the underside the impression of the basket on which they stood to dry (Pl. LV). The workmanship is crude, and it may be that they should be classed with *d*; but all four lay above the 7.00 m. line.

The two unique sherds referred to above would seem to be out of place in the low levels in which they were found.

1. By an unfortunate error this appears in the plate as a rim. That it is a foot is proved by linear decoration applied to what if it were a rim would be the underside of the shoulder.

IX. NOTES ON THE FLINT IMPLEMENTS OF JERICHO, 1935

By JOAN CROWFOOT

(PLATES LVI-LIX)

The flint implements belong to three separate industries. The latest of these is typical of the Cananean industry. It is found throughout the Early Bronze levels (see p. 164), as far down as the seven-metre level above datum. Below this level, the industry gives place to a second, Tahunian II (=Jericho neolithic, pp. 165, 168), which continues down to level 0.05 above datum. It is found with a series of fine plaster floors, but with no pottery except in its latest phase, where it appears to overlap slightly with the first appearance of pottery. Several small chunks of a green substance resembling copper ore have not yet been analysed. They may indicate some use of metal.¹ Below this industry, and separated from it by a mud floor at level 0.05, is a third of microlithic character.

For invaluable help and advice in classifying this material I am much indebted to Monsieur Neuville.

I. CANANEAN ²

The material used for the majority of these implements is a rather coarse-grained brown flint; the remainder are made of light buff chert.

Scrapers. (Pl. LVI, a, 11.) These are of the 'fan-shaped' type, characteristic of both Ghassulian and Cananean stages. They are made of rather coarse-grained tabular flint, with crust left on the upper surface. The majority are long and narrow in shape; one magnificent specimen measures 22.5 by 8 cm.

Sickle-blades. (Pl. LVI, a, 1-8.) Two sickle-blades (nos. 3 and 5) are made on small thick blade sections, and are covered all over on both surfaces with flat retouch; one of them, pointed to form the tip of the sickle, is denticulated, and has a slightly concave cutting edge. Four

1. Professor Bannister reported that the sample 'consists of malachite on green carbonate of copper. This sample is not the product of atmospheric attack on copper or bronze but is the naturally occurring mineral, as shown by its vitreous lustre fracture and hardness, and is a basic carbonate of copper $\text{CuCo}_2\text{Cu}(\text{OH})_2$.' The find-spot was Room 208 below 6th floor level 1.50 m.

2. R. Neuville, 'Notes de Préhistoire Palestinienne,' in *Journal of the Palestine Oriental Society*, X, 1930, pp. 205-210; and 'Le Préhistorique de Palestine,' in *Revue Biblique*, April 1934, p. 257.

other blades (e.g. nos. 1 and 7) have coarse denticulation: three along one edge, one along both; two of these are retouched over part of the upper surface only. Five out of these six sickle-blades were found in the deepest part of the Cananean deposit; it is possible that they belong to a rather earlier phase of Cananean than the remainder.

The majority of the sickle-blades consist of simple blade sections with highly lustrous cutting edges. A number have lustre along both edges, and flat retouch along the most utilised cutting edge, usually on the bulbar face; this suggests that when the cutting edge became too blunt to use it was first resharpened by the removal of thin flakes, and after further use the blade was reversed in the sickle haft. One blade only has a finely denticulated cutting edge. Nine blades have abrupt retouch along the back; six are steeply retouched across one end, three across both ends. Most of the blades measure about 60×20 mm., the proportion of width to length averaging 1 to 3.

Blades with lustrous edges. Most of these are fragmentary, but have been broken after the formation of the lustre, and not before as in the case of the sickle-blades. It is very probable that they also were used as sickles, though they are too long to have been hafted with several other blades.¹ The only complete one is 120 mm. long, and several others must have been longer.

Blades. (Pl. LVI, a, 9 and 10.) These are of the characteristic Cananean type, with the central ridge on the upper surface removed before the core was struck, a deep negative bulb of percussion remaining on the upper surface of the blade at the bulbar end. A number show signs of utilisation. The majority are fragmentary, the complete specimens being 120-150 mm. long.

Gravers. Only one specimen was found. It is of the 'single-blow' variety, made at one end of a broken blade.

Borers. A rather thick blade section has flat retouch along both sides on both surfaces, making a strong point at one end.

Various. A thick flake of coarse flint, with a strong point curved over to one side, has rough retouch all round on the upper surface, and along the concave side on the bulbar face.

1. R. Neuville, 'Les Débuts de l'Agriculture et la Faucille Préhistorique en Palestine,' *Journal of the Jewish Palestine Exploration Society*, 1934, pp. 34 and 36.

Inventory :—

Scrapers	.	.	.	.	.	.	.	12
Sickle-blades	.	.	.	.	.	.	.	39
Blades with lustrous edges	.	.	.	.	.	.	.	14
Blades, complete	.	.	.	.	.	.	.	9
Blade sections	.	.	.	.	.	.	.	36
Gravers	.	.	.	.	.	.	.	1
Borers	.	.	.	.	.	.	.	1
Various	.	.	.	.	.	.	.	1
Total								<hr/> 113 <hr/>

II. TAHUNIAN II

The material used in this industry is a fine-grained nodular flint, brown to grey in colour, and unpatinated.

Arrow-heads. (Pl. LVI, b, 1-14.) The majority are made on narrow leaf-shaped flakes, and have a strong tang, separated from the body by more or less well-defined wings. The tang is covered on both surfaces with fine flat retouch. One specimen (no. 14) has flat retouch all over both surfaces. The remainder are retouched on the bulbar face only, always under the tip, and in a few also along one or both sides. Only six are complete. Three are made from sickle-blades, and have lustre along part of one side. Two (nos. 1 and 3) have neat symmetrical notches, one made in each side, probably for hafting. Two very narrow specimens (nos. 5 and 7), covered on both surfaces with flat retouch, and broken at one end, may have been either upper parts of a narrower type of arrow-head, or much elongated tangs.

Javelin-head. (Pl. LVI, b, 15.) This specimen has flat retouch over the tang and tip on both surfaces, and along both sides on the bulbar face.

Sickle-blades. (Pl. LVII, a, 1-7 and 10-14.) These are made on small blades or on blade sections. All have one highly lustrous edge; only three much-used specimens have lustre along both edges. On several blades (no. 5) the lustre stops abruptly at a diagonal line across one end; this must have been the line to which the haft covered the blade, which formed the end-blade of the sickle. Nearly all specimens have fine denticulation along the cutting edge. Three are abruptly retouched along

the back and across one end, nine have fine flat retouch along the back. The remainder have slightly convex untrimmed backs. The average dimensions are 65×15 mm. Four blades (no. 2) are much shorter and wider; they have flat retouch along the back and across both ends: two on one surface only, two on both.

Blades with lustrous edges. (Pl. LVII, a, 8 and 9.) These differ from the sickle-blades chiefly in their greater size. Three have lustre along both edges. Thirteen have finely denticulated edges; three have been resharpened by flat retouch along the utilised edge. The lustre in the specimens complete at the bulbar end stops abruptly at a line at right angles to the cutting edge a few centimetres from the bulbar end. These blades may also have been used as sickles, but hafted in the same way as modern knives. The largest specimens are about 120 mm. long.

A number of small fragments of blade with lustre along one edge may have been parts of either sickle-blades or knife-blades.

Scrapers. (Pl. LVII, b, 3, 6 and 7.) The scrapers are made on rather thick irregularly shaped flakes, with flat retouch round part of the circumference. Only one (no. 7) is well made; it is retouched all round on the upper surface and has much squamous flaking on the bulbar face. No. 6 is made on a core.

End-scrapers. (Pl. LVII, b, 1 and 2.) Four are fairly well made, with steep ends, on thick small blades. The remainder are on large rough blades. One has a borer at the opposite end of the blade.

Picks. (Pl. LVIII, a, 1 and 2.) One is very well made, rather flat, with almost straight sides; it is retouched over both surfaces by the removal of flakes at right angles to the edges. The other two are rougher and smaller, with wavy edges.

Fabricators. (Pl. LVIII, a, 4 and 5.) These are very thick narrow blades, with flat retouch over the upper surface, and a central ridge much battered by use.

'Lames de dégagement.' (Pl. LVIII, a, 6-11.) Three are large blades with squared sides, battered on the upper surface. The remainder are very narrow long blades, triangular in cross section. The ridge down the centre of the upper surface is very much battered on one or both sides; it is therefore possible that these blades were used as fabricators.

*Gravers.*¹ (Pl. LVIII, b, 8-18.) The gravers are on the whole well made.

(a) Single-blow : 8. These are made at the ends of broken blades ; four have been resharpened. One is made on a broken arrow-head, in its turn made from a sickle-blade. Two are very small.

(b) *Bec-de-flûte* : 7. These are made at one end of blade sections.

(c) Single-faceted : 5. Of these, two are very small and finely made.

(d) Polyhedric : 3. They are very small, made on small blade sections.

(e) Angle : 8. Two are transverse straight-trimmed, three oblique convex-trimmed, and three oblique straight-trimmed. These are especially well made, on the tips of narrow blades ; the retouch in four extends down one side of the blade.

Borers. (Pl. LVIII, b, 1-7.) Three are fairly large, made on pointed blades with retouch defining the point ; one of these (no. 1) has a neat end-scraper at the opposite end. In two specimens (no. 2) a hinge fracture on one surface makes a strong point ; this point is not retouched, but has obviously been used. The remainder are very small ; seven are made on thick microlithic blades, with retouch on either side of the tip making a strong point ; five have fine tapering points.

Wedges. (Pl. LVIII, a, 3.) A tough edge is made at one end of a chunk of flint by retouch on both surfaces ; the other end is battered.

Retouched blades. These are mostly fragments of blades with a little flat retouch along one side, nine on the bulbar face, the remainder on the upper surface. Several small pointed fragments with flat retouch on the bulbar face may be the tips of arrow-heads.

Blades. (Pl. LIX, a, 12-19.) The blades are long and narrow and often sharply pointed. They are smaller than those of the Cananean period, and the blade with the central ridge removed is completely absent. The bulbar ends have been battered before the blade was removed, as in the majority of microlithic industries ; the striking platform is therefore extremely small. A few have very slight lustre along one edge.

1. The classification used for the gravers is that given by M. C. Burkitt in *The Old Stone Age*, pp. 59-64.

The complete specimens vary from 120 to 50 mm. in length, the average length being about 80 mm.

Flakes. The flakes are rather thin, and very irregular in shape and size. When the striking platform is present it is faceted, but more often the bulbar end is battered as in the blades.

Retouched microliths. (Pl. LIX, a, 3-5.) These include one small lunate (no. 3). It has very fine retouch along the back on the upper surface. Two small blades have abrupt retouch along the back. Three small thick blade sections have steep retouch along both sides; it is possible that these are broken borers. The remainder are merely fragments of blades with flat retouch along one or both sides.

Micro lithic blades. (Pl. LIX, 6-10.) The majority are rather broad and thin, with battering at the bulbar end.

Fragments of obsidian. (Pl. LIX, a, 1 and 2.) Eight microlithic blades are battered at the bulbar end. One chunk measures 50×25 mm.; the remainder are small chips. The obsidian is deep grey in colour.

Chopper. A piece of chert is roughly trimmed across both ends on both surfaces, a chopper edge at either end being produced.

Hammer-stones. Two rolled pebbles of flint have been much battered by use.

Cores. Two are blade cores, five for flakes. The remainder are small microlithic cores (Pl. LIX, a, 11).

Core-tablets. These are thick flakes, with squared edges bearing retouch truncated by the removal of the flake. They exactly resemble scraper-tablets, but there are no steep scrapers from which they could have been struck. They must therefore have been removed from used cores to improve the striking platform.

Various. One object (Pl. LVII, b, 5), made on a long flake, is thick at one end and battered on either side; the other end is thin and splayed out; it might conceivably have been hafted at either end. Four blades are much abraded by use; of these, three are bulbar sections only, broken after use, and may have been the lower ends of hafted tools, the abrasion being produced by the haft. On the other hand, the one complete specimen is similarly abraded all round. One tool (Pl. LVII, b, 4), made on a blade core, has a narrow straight working edge, and seems to have been used as a plane.

As the table on p. 183 shows, flints vary considerably in quantity in different parts of the deposit, the richest part being immediately above Floor I. Above the 5-metre level they rapidly decrease, though at about this level the area was almost doubled. On the other hand, typologically the industry is strikingly uniform throughout. Only the blades show any signs of evolution, being smaller at the base of the deposit, and becoming gradually larger in the upper part.

Objects in stone other than flint. The stone objects include the following types:—

Polishing stones: pebbles of fine-grained limestone, ground down and highly polished on one or both surfaces.

Celts: one is polished at the working end, the remainder unpolished.

Bowls: all fragmentary, made of calcite. One is large, *c.* 45 cm. in diameter, the remainder are small.

Pestles: the majority are made of basalt, a few of calcite; one is polished.

Mortars: mostly made of limestone, a few of basalt.

Querns: some are of the saddle type; some very large specimens have a shallow basin with a deeper hollow in the middle. These are of calcite.

Grinding stones: made of lava, basalt, pink sandstone or limestone.

Beads. Twenty-one small green beads were found between two of the floors. They are cylindrical in shape, about 5 mm. in diameter, and varying from 3 to 6 mm. in length. The holes are rather large, and are bored from both ends of the bead. The material appears to resemble that used for beads or pendants found at the Mugharet el-Wad, near Athlit, in mesolithic levels, and at Teleilat Ghassul in strata of the Ghassulian period.¹ However, neither the beads from Athlit nor those from Jericho have yet been examined by experts.

This industry has very definite affinities with Tahunian II,² but differs in certain respects from the type-sites of this period described by Père

1. R. Neuville in *Teleilat Ghassul*, 1934, p. 74.

2. R. P. Buzy, 'une Industrie Mésolithique en Palestine,' in *Revue Biblique*, 1928, pp. 558-578. R. Neuville, 'Le Préhistorique de Palestine,' in *Revue Biblique*, April 1934, p. 256.

Buzy. The sickle-blades, for example, resemble more closely those of Ghassulian type, and the long blades with central ridge removed, which normally make their first appearance in Tahunian II, are absent. The picks, on the other hand, are identical with those of Tahunian II, being far better made than the corresponding early Tahunian or Cananean forms. The fact that they are very rare at Jericho and very abundant on surface sites is not necessarily significant, as in collections made from the surface large and well-made tools, such as picks, tend to predominate. All the other types found at Jericho are perfectly in place in Tahunian II, and there seems little doubt that the industry should be ascribed to this stage.

Inventory :—

Arrow-heads	30
Javelin-head	1
Sickle-blades	34
Blades with lustrous edges	20
Scrapers	30
End-scrapers	10
Picks	3
Fabricators	3
<i>Lames de dégagement</i>	38
Gravers	32
Borers	17
Retouched blades	30
Hammer stones	2
Chopper	1
Wedges	3
Core-tablets	8
Blades, complete	168
Blade sections	409
Flakes	141
Retouched microliths	13
Microlithic blades	85
Fragments of obsidian	15
Cores	15
Various	7
Total	<u>1115</u>

III. MICROLITHIC INDUSTRY

The material used is a fine-grained flint, usually light brown in colour, and unpatinated.

Scrapers. (Pl. LIX, b, 23 and 24.) One specimen (no. 43) is a well-made oblique-fronted steep scraper, of Upper Palaeolithic type. The remaining two are merely rough flakes, with a little flat retouch.

Gravers. (Pl. LIX, b, 11-13.) Two are of the single-blow type made on broken blades. One is a small well-made double-faceted graver, and one an oblique straight-trimmed angle graver, also small and neat.

Borer. (Pl. LIX, b, 15.) A microlithic blade has steep retouch along both sides, making a long fine point.

Backed blades. (Pl. LIX, b, 14.) One microlithic blade has steep retouch along one side, flat retouch along the other; another has nibbling retouch along one side only.

‘*Lame de dégagement.*’ One microlithic specimen only was found.

Blades. (Pl. LIX, b, 1.) These are small and irregular in shape. They show the same battering at the bulbar end as those of the succeeding industry.

Microlithic blades. (Pl. LIX, b, 2-10.) These are also battered at the bulbar end. The majority show signs of utilisation.

Cores. (Pl. LIX, b, 20, 21.) Microlithic.

Fragments of obsidian. (Pl. LIX, b, 16-19.) One is a complete blade, four broken blades, and the remainder small chips.

Stone objects. These are found down to the very lowest flint-bearing level.

Pestles: made of basalt or limestone; they are often very much battered at one end.

Polishing stone: a grinding-stone of basalt has a shallow groove across one surface.

The very small borer possibly suggests that this industry should be placed not earlier than Natufian III, but the material is insufficient for any more exact dating. Except for the steep scraper, the flints so far found are identical with others from the industry above.

	Arrowheads	Scrapers	Scrapers en eventail	End Scrapers	Fabricators	Small fine Picks	Gravers	Borers	Sickle Blades, pre Cananean	Sickle Blades, Cananean	Blades with lustre	Retouched Blades	Complete Blades, pre Cananean	Complete Blades, Cananean	Blade sections, pre Cananean	Blade sections, Cananean	Retouched Microliths	Microlithic Blades	Obsidian fragments & Blades	Various	Total	
I	1100			1				1		14	5			3		11					35	
	1000			4						8	3			3		9					27	
	900			4						13	4			1		9				1	32	
	800																					
	700		2	1	2		1			4	2	1	2	2	5	7					29	
II	600	1	2		3		1	2	2		1	1	9		24					1	47	
	500	4	4		1	7			3		5	7	50		22					4	107	
	400	1	7		3	17		2	4	14		6	4	54		114				8	234	
	300	4			2		3		3		2		4		11			3			32	
	200	5	5		1	2	1	10		6		1	3	13		37		1	15	3	1	104
III	100	1	2			2		4					8		24			9	2	2	54	290
	000	3	6		2	2	1	1	3	2		2	3	12		58		1	10	1		107
	000	3	1		1			2	1			2	2		44		1	11		2	70	
	000	1	1				1	2				1	1		15		1	8	4		35	
	000	1	2		1	4	1	9	4	3		2	7	12		55		9	29	5	1	151
III	000																					005
	000		3			1		2	1			2	3		3		1	27	9			52
	1.75						2						4		2		1	28	2			39

Inventory :—

Scrapers	3
Gravers	4
Blades	7
Microlithic series :	
Backed blades	2
Borers	1
<i>Lame de dégagement</i>	1
Blades	55
Fragments of obsidian	11
Cores	3
<hr/>	
Total	87
<hr/>	

[EDITOR'S NOTE.—The author states that Plates LVI, a, LVIII, b, and LIX have been printed upside down. This was necessary in order to get a consistent direction of light on each pair of plates, and so avoid the *intaglio* effect that is often produced on the eye, if this has been neglected.]

SOME NOTES ON KOSZYLOWCE

By ION NESTOR

At the First International Congress of Prehistoric and Protohistoric Sciences Dr. D. A. J. Buxton read an account,¹ necessarily compressed, of his excavations at the well-known site of Koszylowce in eastern Galicia on the Dzaria, a tributary of the Dniester.²

While awaiting Dr. Buxton's detailed report of his excavations it may, I think, be of use to spend a little time on his present paper. For the opinions that he has formed from his finds at Koszylowce on certain of the problems presented by the painted pottery of this region are so free from the preconceived views that are found in many who have specialised in the prehistory of this group as to deserve the very closest attention. But to say this does not mean that I agree with Dr. Buxton on all points. The fact rather is that I should like to draw attention to some rather odd assertions of his.

I find it, for instance, difficult to understand his opinion on the little human figures in terra-cotta that are so common on all painted pottery sites of the type in question. 'I see no reason,' he says, 'to attach religious significance to these objects.'

We may well ask—so it seems to me—what ground there can have been unconnected with religion for the manufacture of this kind of image on so large a scale; for every dwelling had its own set of them.

To accept the view that Dr. Buxton expresses so lightly would surely be to form a very untrue notion of the mentality of these eneolithic peoples. I am inclined to think that there is room for a correct appreciation of the spiritual life of the makers of the painted pottery civilisation: somewhere between the view that sees even purely decorative *motifs* like the spiral as conveyers of religious ideas, and Dr. Buxton's view, which amounts to a complete secularisation of the lives of these people.

1. D. A. J. Buxton, *Koszylowce* (Proceedings of the First International Congress of Prehistoric and Protohistoric Sciences, London, 1932; Oxford, 1934), pp. 209-11.

2. I should like to refer to *La Colonie industrielle de Koszylowce*, a volume published at Lemberg in 1914 by K. Hadaczek, which contains some material from earlier, haphazard excavations. Most of this belongs to the painted pottery civilisation of Cucuteni type, but part to other groups with unpainted pottery.

Such an appreciation would, I imagine, agree pretty well with the ideas on primitive mentality that Mr. Lévy-Bruhl has put forward.

I should like, however, to draw attention to the fact that Dr. Buxton is content to record finding just dwellings 'of wattle and daub' at Koszyłowce. He did not find anything apparently to show the existence of *płochadki* (houses for the dead) which some of our collaborators still hanker after. In this connection we may compare the 'megaron' found at the neighbouring site of Niezwiska,¹ and belonging to the same civilisation as the houses at Koszyłowce (Bilcze-Złota period=Cucuteni B). It probably was not a 'megaron,' but it was at any rate a dwelling for the living.

Dr. Buxton has some short incisive remarks on the relations between the Cucuteni type of civilisation and what corresponds to it in period and general characters in the eastern part of the lower Danube (Wallachia and eastern Bulgaria) which we know as the Gumelnița civilisation.

We must, however, remember that no sound opinion on civilisations of long duration and wide distribution can be formed merely on the evidence of a few isolated sites. To attempt to form an opinion on such evidence is a mistake. It is a mistake which I have already had to bring up against H. Schmidt, and it now leads Dr. Buxton to put forward views that are impossible or, to say the least, inconsistent.

He makes a radical difference between the Koszyłowce pottery and that produced by Tell-Ratcheff (Bulgaria). On the other hand, he points to certain analogies between the Koszyłowce pottery and that from another Bulgarian site, the 'tell' of Kodja-Dermen near Šumla. But these two Bulgarian 'tells' are just two sites belonging to the same Gumelnița civilisation seen in different stages of its evolution.

Neither of these two sites, in fact, is homogeneous from the stratigraphic point of view, but both show various stages of the Gumelnița civilisation. At Kodja-Dermen, where the remains seem to tell the plainer story, we believe we can distinguish two chief layers. One should be what we call Gumelnița A1, while the other, at a higher level, has a special character of its own which was first clearly brought in evidence here (though it has also been found in Dobroudsha²), and ought therefore to be called after Kodja-Dermen.

But in any case for Dr. Buxton to point to analogies with Kodja-

1. *Liverpool Annals*, XVII, 1930, pp. 19 ff., Fig. 4.

2. Not yet published.

Dermen while rejecting them for Tell-Ratcheff would seem to show a certain lack of grip and confusion of thought. And, anyhow, it is a waste of time to deal with Tell-Ratcheff and Kodja-Dermen separately (H. Schmidt does the same thing and even adds Cernavoda!), since the whole thing is the Gumelnița civilisation in its different chronological stages and its local variations. How many these were and what they were like we know pretty well from the excavations in the Wallachian plain.

In any case it is surprising to find Dr. Buxton seeing links between two groups of the painted pottery civilisation in vases from Kodja-Dermen that have incised, or notched, ornament, which certainly have some connection with a very characteristic kind of pottery peculiar to the Gumelnița civilisation.

It is true that I have more than once pointed out striking analogies between the pottery of Cucuteni and that of Gumelnița, to which I can now add one more from this very Tell-Ratcheff, an example of a very individual highly-developed pattern painted in graphite which is exactly the same as one painted in his usual pigment by a Moldavian potter of Cucuteni A! But I agree with Dr. Buxton in denying that the fabric of Cucuteni pottery, its technique and special qualities, closely resembles that of Gumelnița ware. The technical characters of the two potteries are in fact unlike enough. Yet there are many links between Cucuteni and Gumelnița which I have proposed explaining as due partly to the two groups having had at least one common root, but partly, too, to influence brought to bear by the Gumelnița group on Cucuteni at a fairly early stage of its development.

I note that Dr. Buxton, too, shares the doubts expressed by Dr. Frankfort and myself about the actual evolution from style A to style B on the spot at Cucuteni.

Dr. Buxton's view on the relations between the painted pottery civilisation of eastern Europe and the civilisation of the second neolithic period in Thessaly agrees generally with that recently adopted by Professor V. G. Childe, which I hold to be correct. Yet the point must be made that what we agree on is only the impossibility of proving direct relations between the two groups. The theory of an invasion of Thessaly by a ware coming down from the Cucuteni region is in fact dead. But we must not forget that it has been shown¹ that among the groups of the middle Danube now supposed to be responsible for the

1. By Childe, Schrollier and Nestor.

appearance of Thessalian II there is a widely extended civilisation with painted pottery of 'Dhimini' type, called by us the western Rumanian civilisation, which seems to have reached as far as the Servian Danube (Starčevo). In my view only the fixing of the exact nature, origin, and chronological position of this civilisation will give us an acceptable solution to the problem of the northern connections of Thessalian II.

In the meantime the important thing is this: we must not, indeed, forget the dates involved as fixed by Professor Childe, Dr. Buxton, and myself, but we must avoid building up a wall of non-existent differences between Cucuteni and Thessalian II, which would only involve people, not in a position to take so close a view of the facts as we are, in useless muddle.

For example, despite Dr. Buxton's assertions, the Cucuteni civilisation was acquainted even in its A phase with the boring of stone axes. There are bored axes enough known at Cucuteni itself. And none of the other differences between Thessalian II and Cucuteni that Dr. Buxton notes is beyond dispute.

Dr. Buxton's report on the bronze objects found at Koszylowce agrees perfectly with my own notes on those of Cucuteni.¹

In both places any association of bronze with painted pottery is due to chance. At no stage was the painted pottery civilisation acquainted with bronze, and it follows that there cannot have been any prolongation of the Cucuteni civilisation down to the Bronze Age. But this question involves more civilisations than that of Cucuteni, for, if we are to believe what some of our fellow-workers assert, though heaven knows where they get it from, other eneolithic groups lived on a long time beyond the beginning of the Bronze Age! Mistakes of this kind have been getting too common in the literature dealing with the neolithic or eneolithic culture of eastern Europe and, if not checked, may make a complete muddle of things.

The 'Minyan' sherd from Cucuteni is thought suspect by Dr. Buxton, and rightly so. After a careful reconsideration of the case of this sherd and of the one I thought I had found myself at Fedeleşeni, I have come round to the view put forward by M. Reinecke. Both sherds belong to the La Tène period, and their presence in neolithic layers must be due to some subsequent disturbance of the stratification.

1. *Prähistorische Zeitschrift*, XXIII, 1932, pp. 362-3.



a. CANANEAN : 1-8, SICKLE-BLADES; 9-10, BLADES; 11, SCRAPER.
 b. TAHUNIAN II. : 1-14, ARROW-HEADS; 15, JAVELIN-HEAD.



a

b

JERICHO, 1935.

a. TAHUNIAN II.: 1-7 AND 10-14, SICKLE-BLADES; 8-9, LONG BLADES WITH LUSTRE.
b. TAHUNIAN II.: 1-2, END-SCRAPERS; 3, 6, 7, SCRAPERS; 4-5, VARIOUS.



JERICO, 1935.

a. TAHUNIAN II.: 1-2, PICKS; 3, WEDGE; 4-5, FABRICATORS; 6-11, LAMES DE DÉGAGEMENT (? USED AS FABRICATORS).
b. TAHUNIAN II.: 1-7, BORERS; 8-18, GRAVERS.



a. TAHUNIAN II.: 1-2, OBSIDIAN BLADES; 3-5, RETOUCHE MICROLITHS; 6-10, MICROLITHIC BLADES; 11, MICROLITHIC CORE; 12-19, BLADES.

b. MICROLITHIC INDUSTRY: 1-2, SMALL BLADES; 3-10, MICROLITHIC BLADES; 11-13, GRAVERS; 14, BACKED BLADE; 15, BORER; 16-19, OBSIDIAN BLADES; 20-21, CORES; 22, LAME DE DÉGAGEMENT; 23-24, SCRAPERS.

THE ANCIENT DRAINAGE OF THE COPAIS

By E. J. ANDRÉ KENNY

WITH PLATES LX-LXIII

THROUGHOUT historical times, until the beginning of the present century, the Copais was a fen, and was subject to complete annual inundation by the Cephissus, Melas, and other smaller streams which fall into it. In about 1880 an attempt was made by a French Company to drain the Copaic basin. When it failed, the work was taken over and completed by the Lake Copais Company, which is an English Company, having its headquarters at Haliartos. The writer is much indebted to the Company for the facilities afforded him for pursuing his studies in the Copais.

Before the drainage works, the Copais had been in winter a vast reedy lake, in summer a marshy plain with pastures and plough-land among the permanent meres. The water began to rise in November, and soon covered all the land. It rose continuously until February or March, and then fell throughout the summer and autumn. Great stretches were dry by the middle of summer, though the water did not reach its lowest level until October. In November it began to rise again. The line of the old water-level of the lake can be distinctly seen in many places on the cliffs which bound the Copais. It is about two metres above the present ground surface. In estimating the depth of the lake, however, allowance must be made for the settling of the lake bed since drainage, and for the disappearance of a certain thickness of peat from the top. These causes have not, however, been operative in any marked manner at the extreme edge of the lake.

The cause of the disappearance of the peat is that it has been burned off by the cultivators, either by accident or design. The combined effect of peat loss and settling of the lake bed has produced a difference in level amounting in some places to 3·50 m. between the land surface of 1882 and that of the present day. This sinking of the land surface will be referred to later. It is illustrated by a group of sections drawn by the writer from the plans of the French in 1882 and from the latest survey

of the Lake Copais Co., kindly placed at his disposal by the Engineer of the Company, Mr. Dean (Pl. LX).

The reason for the seasonal changes of water-level while the Copais was not artificially drained is to be found in the natural drainage. The water found its way out of the Copais through a large number of swallets, *καταβόθραι*, on the eastern side of the lake. A line can indeed be drawn across the Copais from north to south, a little to the east of Haliartos, and it will be found that there are no *katavothrae* west of this line, and no springs east of it. During the summer and autumn the discharge of the *katavothrae* exceeded that of the rivers that fall into the Copais, so that the water-level fell. In the wet season, when the rivers were in flood, the total discharge of the rivers exceeded that of the *katavothrae*, and so the water-level rose, and the marsh became a lake again. The water-level naturally varied from year to year, since the discharge of swallets is a variable quantity, particularly in a limestone region, and one subject to earthquakes. The Thebans in antiquity regarded it as a bad omen if the lake were abnormally high for three years in succession. Theophrastus, in the *Historia Plantarum*, IV, xi, 2, says that two years of high lake level in succession were necessary for the proper growth of the flute reed. In *De Causis Plantarum*, V, xii, 3, he remarks on the effect of the level of the Copais on the severity of the winters in Boeotia and Euboea. When the water is higher, the winters are less severe. The higher water-level means an increased surface and greater evaporation, with consequently greater humidity. The result is that the temperature in the regions near the lake does not fall as much as it does in years when the air is drier.

Such throughout historical times has been the condition of the Copais. But we read in Strabo, IX, p. 415, of a tradition that the Orchomenians had at one time drained the whole basin and had it under cultivation. Apart from the abundant remains of a prehistoric drainage system, this tradition is corroborated by other considerations. Before the Dorians came, Orchomenos was the chief power in Boeotia. Homer, who speaks of a pre-Dorian Boeotia, not only tells of the greatness of Orchomenos, but also of the fertility of the fenland of the Cephissus (*Iliad*, V, 707).

καὶ Ὀρέσβιον αἰολομίτρην,
ὃς ῥ' ἐν Ὀρχομένῳ μέγα πλούτοιο μεμηλώς,
λίμνην κεκλιμένος Κηφισίδι· παρ δέ οἱ ἄλλοι
ναῖον Βοιωτοὶ μάλα πίονα δῆμον ἔχοντες.

The Thebans had a tradition that the plain of Orchomenos was flooded by the Cephissus river because Heracles blocked the emissaries (Pausanias, IX, 38, 7).

Θηβαῖοι δὲ τὸν ποταμὸν τὸν Κηφισὸν φασιν ὑπὸ Ἡρακλέους εἰς τὸ πεδῖον ἀποστραφῆναι τὸ Ὀρχομένιον· τέως δὲ αὐτὸν ὑπὸ τὸ ὄρος εἰς θάλασσαν ἐξιέναι πρὶν ἢ τὸν Ἡρακλέα τὸ χάσμα ἐμφράξαι τὸ διὰ τοῦ ὄρους.

From this we may at any rate deduce that the Copais drainage scheme was functioning in the period immediately before the Dorians, represented by Heracles, made their appearance. The rulers of Boeotia at that time were the Minyae of Orchomenos, who had sent the 'storied Argo, theme of every lay,' as Homer calls her, through the blue Symplegades to bring back the Golden Fleece.

Nor, perhaps, was it mere chance which made Homer couple together Orchomenos and Egyptian Thebes as examples of rich cities in *Iliad*, IX, 380. There were canals and dykes in both. We have a definite tradition which connects Egypt with the irrigation of the Peloponnese. In Homer Ἄργος—the Peloponnese—is both (*Iliad*, IV, 171) πολυδίψιον and (XV, 372) πολύπυρον. These epithets reflect the state of the country both before and after the irrigation works were carried out. The Scholiast on *Iliad*, IV, 171, says:—

ἄνδρον οὖσαν τὴν Πελοπόννησον ἔφυνδρον ἐποίησε Δαναὸς ἐξελθὼν ἀπὸ τῆς Αἰγύπτου καὶ οἰκήσας αὐτήν.

Strabo, VIII, p. 370, quotes on the same subject the line

Ἄργος ἄνδρον ἐὼν Δαναοὶ θέσαν Ἄργος ἔνδρον.

To the dry state of the country Callimachus refers in *Hymn. Jon.*, 18:—

Λάδων ἄλλ' οὐ πω μέγας ἔρρεεν, οὐδ' Ἐρύμανθος,
λευκότατος ποταμῶν· ἔτι δ' ἄβροχος ἦεν ἅπαντα
Ἀρκαδίῃ· μέλλεν δὲ μάλ' εὐνδρος καλέεσθαι
αὐτίς.

There was, incidentally, an artificial canal cut to take the waters of the Ladon and other rivers that rose in Lake Pheneos and lead them to the katavothrae. Cadmus, also, who, according to Dicaearchus, 13, was responsible for building the fountains of Thebes, was by some supposed to have come from Egypt. (Pausanias, IX, 12, 2; Dicaearchus, p. 143; Fuhr, p. 33, ed. Rom. 1819.)

It is logical to begin an account of the ancient drainage of Lake Copais by describing the remains of the drainage works that have been found in the bed of the lake, although these were not the first part of the scheme to attract attention in modern times. The principle on which the Minyan drainage scheme worked was as follows: the water of the rivers which fall into the lake was intercepted at the very edge of the basin, and conducted in embanked canals to the katavothrae. An attempt was also made by the Minyans to open an artificial emissary.

The accompanying map (Pl. LXI¹) shows the position of the embankments of the prehistoric drainage system. It was prepared by the writer on the basis of the Company's general plan of the Copais. The Minyan embankments are indicated by full lines. The western part of the southern embankment, west of the modern Melas-Moulki drain, has now entirely disappeared; its position as far as it is marked was given to the writer by Mr. D. Steele, who lived for many years at Haliartos as General Manager of the Company. Further west still, towards Petra, all traces of Minyan work are lost, having been obliterated by Hellenic and later cultivation, and by silt and flood-water from the rivers falling into the Copais on this side.

The central canal, marked 'Canal of Crates' on the map, has disappeared without leaving any traces. It is marked in the position assigned to it by the Greek Kambanis, an employee of the French Company, who published an account of the Minyan embankments in the *Bulletin de Correspondance Hellénique* in 1892. In this work he was assisted by the surveyor Lallier. Kambanis was of opinion that the central canal was a Minyan work, and is at great pains to fit it in with the Minyan drainage scheme. On structural and other technical grounds, however, it can be argued that this canal can have no connection with the Minyan works. Kambanis records that there was in his time a chapel on the top of one bank of the canal, one kilometre east of the village of Déglès, and that the banks were especially large at this point. Banks and chapel and all sign of the canal had disappeared by 1910, in which year Mr. Cole, then Engineer to the English Company, made a search for this canal when collecting data for a report on the katavothrae. It is a matter for surprise that so considerable a monu-

1. The writer would record his thanks to Mr. J. E. Davison of Cambridge, who very kindly prepared for publication the drawings which accompany this article.

ment should have entirely disappeared in so short a time, especially as the other remains have all survived the comparatively trifling interval until the present day.

As can be seen from the plan, the Copais is surrounded on all sides except the south-west by high perpendicular walls of limestone rock. Wherever possible the Minyan engineers constructed only one bank and kept the water between it and the steep side of the lake. Across the Bay of Davlos they made a canal, of which the outer bank alone was raised above the level of the ground. The natural rise of the land in the bay was sufficient to prevent the water from overflowing on that side. The dimensions of this canal are as follows: the outer embankment is 19 m. thick, and the channel is 41 m. wide. The outer bank has a stone retaining wall running like a backbone along its whole length. The inner bank had also a reinforcement of stone, but all the stones have been removed, and lie in heaps on the land. This side of the canal may well cease to be visible in a few years, but the outer bank will remain, because it carries a road, and no attempt will be made to plough it down. Across the Bay of Karditsa only one bank survives. This carries the modern road, and the stone retaining wall can be seen projecting irregularly in the middle of the road. If there ever was a second bank, all traces of it are now lost. During the classical period and after, the Minyan bank was put in repair and strengthened to serve as a dyke to protect the bay from inundation. At one time a wall of ashlar masonry was built outside the original polygonal retaining wall and contiguous with it. This can be seen in section at the point where the bank is intersected by the modern drain called the Melas Canal.

The land in the Bay of Karditsa was cultivated by the men of Akraiphiai (or Akraiphnion), who dwelt on the steep acropolis that rises above the village of Karditsa. It was they who kept up the Minyan dyke across the mouth of the bay to protect their land from the floods which came each year to the lake. The date of one of the major repairs is known to us. It is given by an inscription (*I.G.*, vol. VII, no. 2712) built into the wall of the church of St. George at Karditsa, at the foot of the acropolis. The inscription records a decree, dated just before A.D. 40, in honour of a certain Epaminondas, who, among other public-spirited actions, had contributed over 6000 denarii for the purchase of cement to be used in the repair of the dyke. Cement had not been stipulated in the original contract, and Epaminondas made himself

responsible for its provision in quantity sufficient for the whole dyke. The relevant words are :—

τοῦ τε μεγίστου καὶ σώζοντος ἡμῶν τὴν χώραν χόματος παρα-
λελειμμένης τῆς κονιάσεως ἐν τῇ ἐγδόσει τοῦ ὅλον ἐπισκευασθῆναι
καὶ κονιαθῆναι μόνος προενόησε προσμείνας καὶ κατωρθώσατο ὑπὲρ
ἑξακισχίλια δηνάρια οὔσης τῆς ἐπισκευῆς εἰς δώδεκα σταδίους.

It is not unreasonable to see in the ashlar wall of large blocks that fronts the Minyan retaining wall of the dyke the actual wall that was built and made watertight with Epaminondas' cement (Pl. LXIII, a).

An indication of the previous history of this part of the Copais is given by another inscription, apparently of the time of Cassander's rehabilitation of the Boeotian League and of Thebes in about 315 B.C. This inscription is a boundary inscription on the frontier between Copae and Akraiphnion. It is on a cube of rock at the extreme end of the northern promontory of Karditsa Bay. The cube, which measures some four metres in each direction, seems as if it may have been detached by an earthquake from the rock of the promontory itself. The text reads :—

ὄρια Κωπῆων
ποτ' Ἀκρηφιεῖας
ὀριττάντων Βοιωτῶν.

It was published by P. Jamot in *B.C.H.*, XIII, 1889, p. 407, and is in *I.G.*, VII, no. 2792. Its chief interest for us is that it shows that the Bay of Karditsa was under cultivation at this period, and was reckoned as Akraiphnian territory. It may well be that the men of Kopai laid claim to the rest of the lake that bore their name. Here, perhaps, we have a record that their claim to Karditsa Bay was disallowed by the Boeotian League.

From the Bay of Karditsa to the entrance of the Bay of Topolia, where the main emissary canal begins, the Minyan embankment is difficult to follow, but can be traced with a little care. Beyond the island of Gla its course is marked by heaps of stones taken from its retaining wall by the modern cultivators.

The northern side of the lake lent itself particularly well to the Minyan technique, for the rock wall is almost unbroken the whole way along. The bank on this side was, next to the emissary canal, the most important of the Minyan works in the lake bed. Behind it flowed the waters of the two chief rivers that fall into the Copais, namely, the Melas

and the Cephisus. The bed of the Cephisus on the south side of the Copais is comparatively modern. The ancient course, which can still be seen, brought the Cephisus into the catchment area of the Minyan northern canal. The single bank of this canal is of great size and strength. Its total width at the present day is 66 m. It is reinforced by two polygonal walls within its thickness. These walls are 2 m. thick and 27 m. apart. In many places the bank runs through cultivated land. It is then ploughed, and raises a good crop.

From Topolia the water is taken across the Bay of Topolia in a great canal. Both banks of this canal are reinforced by polygonal walls. In each bank there is a single wall 3 m. thick. The wall of the western bank is the better preserved because it has built on top of it a Frankish causeway which leads from Topolia to the Frankish bridge across the Melas (Pl. LXIII, b). This bridge—under the name of the Turkish Bridge—is a well-known point in the Copais to-day. Kambanis in his paper calls it 'le pont de Kokkino,' from the village of Kokkino in the hills near by. The width of the canal from the wall in one bank to the wall in the other is 60 m. This seems to have been the width of the actual waterway, for in this canal the walls acted as both reinforcement and facing to the banks. In the other banks, the walls were built for reinforcement only, and were embedded in the core of the banks. The resemblance between the walls of this canal and the polygonal masonry of the fortification walls of Gla is very marked.

The canal from the north joins the canal which has skirted the southern and eastern shores at the Turkish Bridge. At this point there are ruins of walls and solid stone embankments of enormous strength. The single bank of the canal from the south is brought to join the western bank of that from Topolia. The actual junction and the banks for some distance before it are built of solid stonework. A house belonging to one of the Company's guardians stands actually on the junction of the two banks. The eastern bank of the canal from Topolia is brought round to join the northern bank of the emissary canal. The emissary canal runs in a straight line from the Turkish Bridge towards the katavothra of Binia (*Ἐμπίνεια*). Some distance from the katavothra the canal ceases to have banks raised above the level of the ground. Kambanis maintained that from the point where the raised banks end, the water was carried in canals which have since disappeared to all the katavothrae at the end of the bay. Of this supposition more will be said later. For

the moment it is sufficient to say that the main emissary canal can be clearly seen reaching the whole way from the point where the raised embankments end to the katavothra of Binia. Moreover, no canals can be traced in the direction of any other katavothra. The canal to Binia katavothra is plainly visible at all times, though it is naturally easiest to see when the wheat crop is nearly ripe. As a result of the damage the banks have sustained from the plough, the dimensions of the waterway cannot be recovered with any exactitude. It is, however, clear that the width of the waterway remains the same from the Turkish Bridge to the katavothra. A great deal of stone has been quarried from the raised embankments of the emissary canal, and they have been much ploughed down. From the top of one embankment to the top of the other is 105 m., so that the width of the waterway cannot have been much less than 80 m. Each bank appears to have been between 40 m. and 50 m. thick.

Kambanis in his treatment (in *B.C.H.*, XVI) of the north and south canals supposed rather too much of the southern canal to have had an embankment on both sides. Such a double embankment as we find in Davlos Bay was, on the southern side, only necessary there and west of Haliartos, where the side of the lake is not steep. Even west of Haliartos there is no evidence that there was ever more than one bank. Thinking, however, that there was an inner bank between the water in the canal and the side of the lake, Kambanis supposed that each katavothra had a separate branch canal leading to it from the main canal. He was encouraged in this supposition by the fact that there are two short banks outside the entrance to Mavrommati katavothra. These are plainly not connected with the Minyan scheme, since the embankment is there only a single one. These banks are probably a relic of the time when the water flowing down from the flooded lake into the katavothra drove a mill. Many of the katavothrae had at one time a mill at the entrance, as is shown by the frequency of the name 'Palaeomylo Katavothra' given by the inhabitants to several of the swallets.

The only real difficulty in connection with the Minyan works in the Copais arises out of the lost Central Canal. Kambanis confessed that its course could not be traced beyond a certain point. He concluded that it continued right across the Copais, and joined the canal from the south at the headland of Mittika, the northern promontory of the Bay of Karditsa. It is impossible to agree with this conclusion for

two sufficient reasons. The first is that there are no signs at Mittika Point of any junction works. We know, from the structures at the Turkish Bridge, with what strength and massive solidity the Minyans built such parts of their embankments. A junction could not disappear and leave no trace while the banks could survive. The second reason why the canal cannot have crossed the bed of the Copais in this way is that in order to do so it would have had to flow uphill, unless the banks of the waterway had been of prodigious height and strength where they crossed the low ground. Had the banks been of this height and strength, they must certainly have survived. Moreover, Kambanis expressly notes that the banks that he saw of the central canal had no stone retaining walls; each bank was, he says, only 'un dépôt de terres négligemment jetées, sans aucune trace de soutènement ou de consolidation.' Had they been intended to continue across the Copais, they must have been as strong as the other banks, at the very least, for they would have had a greater head of water to hold. So little convinced was Kambanis by his own conclusion that he suggested an alternative. The central canal, he says, may have been intended to convey the water of the Hercyna into the middle of the Copais for irrigation in summer.

Kambanis and all who have followed him have tacitly assumed that the central canal is a Minyan work. This, however, as has already been said, is open to doubt. First of all, it requires ingenuity, if not actually misguided ingenuity, to fit it into the scheme of the Minyan drainage at all. The Hercyna and all the southern and south-western rivers are quite satisfactorily carried off by the southern canal, the Cephissus and the Melas by the northern. We are left with the suggestion made as a second best by Kambanis, and supported by Phillippsen (*Zschr. d. Ges. f. Erdkunde*, XXIX, p. 1, 1894) on the strength of a three days' stay at Thebes, that the canal was intended to distribute the water of the Hercyna for irrigation in the Copais. It may not be out of place at this point to make a few remarks on the value of Phillippsen's paper to the student of the Copais. Phillippsen was a geologist, and was primarily concerned with the geology of the region: he admits that all his archaeology was taken at second hand from Kambanis and Lallier. Moreover, he stayed at Thebes, outside the Copais, and was there only three days. Indeed, one of the things that he records with the greatest satisfaction is the number of kilometres he travelled each day in a horse carriage. 'Machten wir doch,' he says, 'am ersten Tag 46 Km. zu Wagen, am zweiten

60 Km. zu Wagen, und 30 Km. zu Pferd, am dritten Tage 60 Km. zu Wagen'! (p. 4).

The irrigation theory of the central canal is not very plausible for several reasons. The water of the Hercyna springs at Livadia is required for the irrigation of the land near Livadia. Although they are the most considerable springs in the district, their water would not go far when applied to the irrigation of the main plain of the Copais. Any attempt to use the Hercyna in summer must have meant that there was an arrangement to divert it during the winter when it was in flood. Works on that scale would not have been justified for the sake of obtaining what was at the best a small stream. More especially is that so inasmuch as any benefit obtained by irrigation of the Copais with the water of the Hercyna would be obtained at the expense of Livadia. In any case, there was available, then as now, a supply of water from the Melas and Polygira springs, if not from the Cephissus, convenient by position and level for the irrigation of the whole Copais. Nor is it in any way proved that the central canal is the work of the Minyans. So far, what evidence there is is against it. The banks were mere heaps of earth, thrown up haphazard, without those retaining walls which characterise all the genuine Minyan work in the Copais. Structurally, then, the central canal is non-Minyan in character, and no place can reasonably be found for it in the scheme of the Minyan drainage.

The preparations made for digging an emissary tunnel attracted the notice of modern travellers many years before the embankments were noticed or recognised. Wheler seems to have been the first to mention the tunnel. All that is visible on the surface is a series of square shaft-mouths by the side of the road which leads from the eastern end of the Bay of Topolia over the pass to the ancient port of Larymna. The position of these can be seen from the accompanying plan. Wheler, in the *Voyage to Dalmatia, Greece, and the Levant*, supposes that the shafts were dug to afford access to the katavothrae in order to clear them out. Barthélemy voiced the same opinion, which he copied, together with his account of the shafts, from Wheler. Leake, *Travels in North Greece*, II, p. 283, describes the shafts, and gives his opinion that they were sunk with a view to enlarging the katavothrae. He was the first to connect the shafts with the canals of the Minyae in the lake bed. He rightly regarded some work of this kind as the necessary complement of the Minyan canals. Ulrichs and Bursian describe the shafts, and connect

them with an attempt to drive a tunnel under the pass. Ulrichs says they should be attributed to the Minyans ; Bursian regards them as the work of Crates of Chalcis, who began under Alexander the Great a project for the drainage of the lake. His project was not completed, being abandoned on account of the internal dissensions of the Boeotians. The French engineer Sauvage examined the shafts in 1845-46, and published an account of them in the *Annales des Mines*, Ser. 4, Vol. X, p. 101. He stated authoritatively that the shafts were sunk in order to drive a tunnel. In 1856 some clearing work was done in the shafts by Sauvage, but the results were never published. Next came the work of the French engineer Moulle, who measured the shafts, and surveyed the route of the tunnel. His work formed the basis of that of Kambanis and Lallier. Finally, in *B.C.H.*, XVII (1893), Kambanis published a full account of the shafts together with maps and drawings by the surveyor Lallier. The work of Lallier is the valuable part of the publication. The annexed plan and section of the tunnel are after Lallier (Pl. LXII).

The shafts are sixteen in number, and follow very closely the lowest contour of the pass which leads to Larymna. It will be seen from the section that in the last four shafts on the Larymna side there are abandoned tunnel headings above the line of the main unfinished tunnel. The explanation of this is that after the upper headings had been begun, the engineers decided to make the fall of the tunnel greater, and made new headings lower down, on the line of the new gradient.

In his article on the tunnel Kambanis is much exercised to show that the tunnel was not and could not have been the work of the Minyans. He is convinced that it represents the attempt of Crates to drain the Copais. His arguments are these. The dyke system of the Minyans was complete in itself, and the katavothrae were sufficient to deal with the flow of water at all times. Secondly, Strabo, Diogenes Laertius, and Stephanus of Byzantium mention the work of Crates. Thirdly, the work was beyond the capabilities of the Minyans. The exactitude with which the tunnels keep to the correct slopes, and with which the shafts follow the lowest profiles of the valley, shows that the project was that of a trained engineer. Fourthly, if the shafts had been in existence before the time of Alexander the Great they would not have passed unnoticed in literature. Lastly, Kambanis adduces his theory, now definitely proved to be erroneous, but stated by him as a fact, that the water of the emissary canal ran from the end of the embanked portion

of this canal in a number of unbanked branch canals to the various katavothrae in the Bay of Topolia. In actual fact, as has been pointed out, the emissary canal extends in an unbroken straight line from the Turkish Bridge to Binia Katavothra, where the tunnel adit is. In his article in *B.C.H.*, XVI, on the Minyan dykes, Kambanis says nothing about the relative sizes of his branch canals. Lallier's map, however, which is attached to the article in *B.C.H.*, shows undoubtedly that the largest branch canal leads to Binia katavothra. In the next year, however, the map which accompanies the article on the tunnel in *B.C.H.*, XVII, shows the largest branch canal leading to the katavothra of Spitia. This change, for which there can in fact have been no evidence, was made in order to support Kambanis' contention that the tunnel was not a Minyan work.

Nor are the other arguments of Kambanis at all convincing. The discharge of the katavothrae has undoubtedly decreased since prehistoric times; yet, even if it had been normally sufficient to carry off all the water from the Minyan canals, it was nevertheless variable and uncertain. While the drainage depended upon the katavothrae alone for its outlet, there was always an element of uncertainty in its functioning. The tunnel scheme is the logical conclusion to the system of dykes. Without the canals of the Minyan scheme, a tunnel at the katavothra of Binia would not be of any use to drain the lake. There is no reason, either, to suppose that the Minyans had not the engineering ability necessary for undertaking such a work as this. The actual digging would present no difficulty, Kambanis admits, but the Minyans' knowledge of surveying would, he contends, be unequal to the task of laying out the work. There is, in fact, no reason why the Minyans should not have been able to do the preliminary survey and levelling with sufficient accuracy. There are several examples of prehistoric tunnels of equal or greater antiquity which required accurate preliminary work. Those at Jerusalem and Gezer may be mentioned particularly. The proficiency attained in surveying at a very early period in Egypt is well known. When the boundary marks of King Ikhnaton of the 14th century B.C. were connected in 1909 with the triangulation of the Survey of Egypt, the error over 15 kilometres was found to be only 54 metres.

We now come to Kambanis' arguments from ancient literature. He says in effect that because Strabo, Diogenes Laertius, and Stephanus of Byzantium mention the work of Crates, the tunnel must therefore

have been begun by Crates. Not one of the three authors says a word about a tunnel. What they say is that Crates cut a canal across the Copais, and subsequently abandoned the attempt to drain the Copais on account of the quarrels of the Boeotians. It is true that Crates was a mining engineer (Strabo calls him *μεταλλευτής*), but Stephanus of Byzantium expressly states that his work in the Copais was the cutting of a canal (*διετάρφρευσε*). Diogenes, also, calls him *ταφρωρύχος*, which does not mean, as Kambanis says it does, 'creuseur de conduits souterrains.' The fact that no ancient writer has anything to say about the tunnel is surprisingly interpreted by Kambanis to mean that the attempt to drive it must date from the time of Alexander the Great and not before. It is far more likely that a work of this magnitude and importance, undertaken by command of Alexander, would have been described and praised by all historians and geographers. It is unthinkable that it could have been passed over in silence. Nor would the tunnel have failed to attract the attention of ancient writers if it had been begun in the 6th century B.C., a period which produced several remarkable hydraulic works. The only plausible reason for it having escaped notice is that it was there all the time, having been dug by the prehistoric Minyans.

In spite of the unfinished state of the drainage works, the desiccation of the Copais in prehistoric times seems to have been fairly complete. We may judge of this from the number of cities said by the ancients to have been swallowed up in the lake. Athenae and Eleusis, Arne and Midea are supposed to have suffered that fate. The last two are known to Homer: *Iliad*, II, 507:—

οἳ τε πολυσταφύλην Ἄρνην ἔχον, οἳ τε Μίδειαν.

In 1933 the writer discovered a wall in the Copais which has every appearance of being part of the fortification of a city. It is built of cyclopean masonry. The position of it is shown on the attached Copais plan. The thickness of the wall is 2·50 m. It runs southwards from the island of Stroviki for 717·50 m., then it turns with a sharp right-angle eastward, and can be traced on the surface for 1 km. 920 m. It can still be seen a short distance below the ground in the sides of the Company's Melas Canal. Both portions of the wall—that which runs north and south, and that which runs east and west—are perfectly straight. The angle of the wall is built with dressed stones.

With a view to the preservation of the wall as an antiquity the Company made, at the instance of the writer, a preliminary examination. A pit was sunk at the corner inside the wall and a trench dug outside it. These showed the dressed stones laid upon each other at the corner. The wall stands at this point to a height of 1.30 m. from the foundations. The top of it is level with the ground. Just below the surface in the neighbourhood of the wall there are lying many fallen blocks from the wall. The wall encloses the large island of Tourloyianni, east of Stroviki Island: the eastern return of it has not yet been found. Tourloyianni is a steep rocky hill with an ancient site on the top: on the northern side, invisible from the Copais, an ancient road, unnoticed by former travellers, ascends it. The road is supported by a cyclopean retaining wall of the same character as the wall in the Copais, and is worn in many ruts. In spite of the evidence that the road affords of having carried heavy traffic, there are no remains of buildings on the hill, but only an area where the rock has been levelled. Even so, from its position Tourloyianni is the only place which can have been the acropolis of the city below in the Copais.

The reason why the wall at Stroviki has not been noticed before is that until a few years ago it was not visible on the surface of the ground. It has been brought to light by the disappearance of the peat from on top of it, and the general shrinkage and consolidation of the land consequent upon the lowering of the water-table by drainage. For the effects of land shrinkage reference may be made to *The Geographical Journal*, vol. LXXXI, 2, p. 149: Gordon Fowler on 'Shrinkage of the Peat-covered Fenlands.' The position of the wall relative to the land surface in 1882 and at the present day (1933) is shown on the drawings of sections taken along the Melas-Moulki drain.

The same lowering of the land level has also brought to light a number of mounds of stone between 10 m. and 16 m. in diameter to the south of Stroviki. There is no clue to the age or use of these mounds, except that their having been covered with peat establishes a presumption that they are of the antique period.

Before leaving the Minyan drainage of the Copais, it is not irrelevant to notice the sites of some forts built by the rulers of Orchomenos to protect their land and their dykes. The great island stronghold of Gla is sufficiently well known to need no description. It is on the shortest route from Orchomenos to the sea, which runs through the Bay of Topolia

and over the low pass to Larymna. Further on the same route are two other forts. Three rocky promontories project into the Bay of Topolia from the north side. The middle one of these bears the ruins of a citadel larger than Tiryns. Its walls measure 350 by 150 m., and are 2·50 m. thick. The western promontory also bears ruins of walls, visible for 270 m. There were at one time vestiges of a dyke some 500 m. long joining the two promontories, but this may well have been a later work. The dimensions of the forts are due to Noack ('Arne,' *A.M.*, XIX, pp. 405-86), since, when the writer visited the site in 1935, the walls were much broken, and their dimensions could not be recovered. The dyke between the two promontories had at that time entirely disappeared. It was not visible at any state of the crop. The forts on these promontories and the citadel of Gla were doubly useful: not only were they strong posts on the way to the sea, but they guarded also important points in the drainage system. The junction of the canals at the Turkish Bridge, although within sight of Gla, was further guarded by a post and signal station on the top of the cliffs at Pyrgos Hagia Marina. There are remains of another guard-house by the road which runs from Karditsa to Topolia. It is on the left, where the road comes down into the Copais in the bay north of Mittika Point.

There is an outer line of small look-out posts on the heights to the east of the Copais commanding a view of the avenues of hostile attack on this side. A round tower of polygonal masonry stands on the northern peak of Mt. Ptoon above the monastery of Hagia Pelagia, and a semi-circular wall on the highest peak of Ptoon, a little to the south. There are two small forts, one on each side of the valley above the temple of the Ptoan Apollo, and a third, larger one, on the mountain called Megalovouno, which is to the east of the temple of Apollo. The fort on Megalovouno consists of a well-built round tower, 5·50 m. in diameter, standing in an enclosure with a gateway. The wall of the enclosure is 2·50 m. thick. The road to Anthedon was guarded by a post at the west end of Lake Paralimni. The posts on the hills were so arranged that the approach of an enemy from the coast over any of the passes leading to the Copais could at once be seen and reported by signal to the headquarters at Gla. A force advancing from Larymna would be seen either by the look-outs on Mt. Ptoon or by the men in the forts on the north of Topolia Bay. Both these places are visible from Pyrgos Hagia Marina, which in turn can be seen from Gla. Again, an attack from Anthedon

would meet first the outpost on Lake Paralimni, which would signal the danger to the stations on Megalovouno and in the valley above the temple of Apollo, and so on to Gla. The higher posts also command a view over the plain of Thebes. It will thus be seen that the scheme of defence of the Copais depended on a force concentrated at Gla, which on a signal from the outposts could strike at once against any invader. Pindar wrote better than he knew when he called on the *παλαιγόνων Μινυῶν ἐπίσκοποι*: the watchers of the ancient Minyans were more than a poet's fancy.

The attempt of Crates of Chalcis to drain the Copais has been mentioned above. No trace of any of his works in the Copais has been reported by any archaeologist. We have seen that the bulk of the evidence is against the view that the Central Canal in the Copais was a Minyan work. It was constructed in later times in order to convey flood-water from the Hercyna into the Copais—then a lake—without its overflowing the cultivated land on the south. The banks also which lie off Petra, east of Mamoura, were part of the same plan of canalising the outfalls of the rivers on the south of the Copais, which was cultivated throughout Hellenic antiquity and in later times as well. The existence of high ground in the middle of the Copais may be ascribed to the action of the Hercyna floods in bringing down silt, which was discharged in a kind of delta at the end of the canal. The writer would suggest that the above banks and the Central Canal were the work of Crates. The evidence for ascribing the central canal to Crates is the following: the canal has no affinity, either by construction or in purpose, with the Minyan system of drainage; it was dug hastily, not being provided with revetments; Crates of Chalcis is known to have been engaged in drainage works in the Copais. Stephanus of Byzantium says he cut a canal through the Copais (*διετάρφρευσε*), and Diogenes Laertius calls him *ταφρωρύχος*. Crates is known to have abandoned his work before it was completed on account of the dissensions of the Boeotians, a fact which accords well with the hasty manner in which the banks of the Central Canal were constructed. A strong presumption is therefore established in favour of the Central Canal being the work of Crates.

There is also an ancient canal leading from the river Melas to the *katavothra* of Stroviki, north-east of the island of Tourloyianni. It cuts the Minyan bank, so that it cannot be part of the Minyan scheme. Near the *katavothra* the banks of the canal have retaining walls of stone. The

masonry is bad but ancient. On the top of the western wall there is a later wall, probably of a mill. The banks of the canal are of considerable size. It is extremely likely at the least that this canal is the work of Crates. Exploration of the katavothra failed to reveal any traces of cutting to enlarge it. Nevertheless its discharge could be very high. The canal leading to it was put in repair and cleaned out at the beginning of the present century as an emergency overflow for the Melas. This canal and its banks are shown both on the plan of the wall at Stroviki and on a separate plan. It has been supposed by some that a wall inside the Grand Katavothra on the left side of the passage looking downstream was built by Crates. The masonry of this wall declares sufficiently that it is modern.

Sir James Frazer, in his edition and translation of Pausanias (V, p. 117), refers to traces of an attempt at some period to make an emissary to the Copais, using the route of the modern emissary by way of Karditsa Bay and Lakes Likéri and Paralimni. This attempt was also mentioned by Curtius in *Szb. d. k. Ak. d. Wiss. z. Berlin 1892*. Frazer speaks of shafts in the Bay of Karditsa, and of a cutting begun on the pass between this bay and Lake Likéri. Geiger, in *Pauly-Wissowa*, pretends that the shafts are eight in number, and places them on the pass. The cutting is mentioned by Curtius but not the shafts, but all his information about the Copais, with the exception of this detail, is taken from Kambanis. No trace can now be found of shafts in Karditsa Bay or on the pass. No one in the Copais had ever heard of them, nor had any traces of ancient work been encountered during the construction of the modern emissary canal and tunnel. The writer examined the supposed cutting on the ridge at the head of the bay, and found that it is certainly a natural rift and not an artificial cut. The Bay of Karditsa is a most unlikely place for an ancient attempt to drain the lake, for it is one of the highest parts of the Copais. Before the water will flow from the Copais into Lake Likéri a long and deep canal must be dug, as well as the cutting or tunnel through the ridge. The modern tunnel alone is 800 m. long. The Karditsa route was chosen for the modern emissary on account of the possibilities of the Anthedon outfall for the development of electric power.

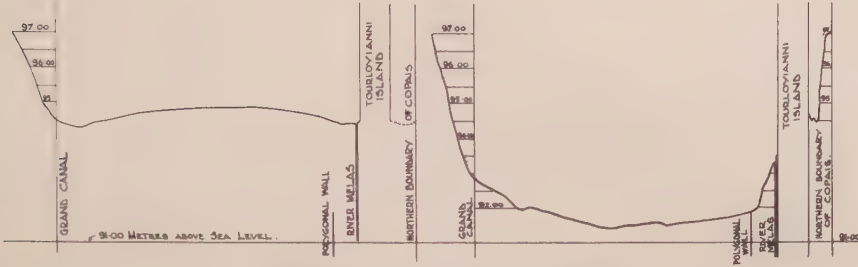
In conclusion, the writer would express his sincere thanks to Mr. G. L. Bailey, the General Manager of the Lake Copais Company at Haliartos, for the hospitality afforded him at all times on the Company's estate,

and for the facilities granted him over long periods for the pursuit of his investigations. His thanks are also due to the whole of the Company's English staff at Haliartos, in particular to Mr. Dean, the Chief Engineer, and to Messrs. D. H. Steele and Eric Lynch, under whose roof he lived.

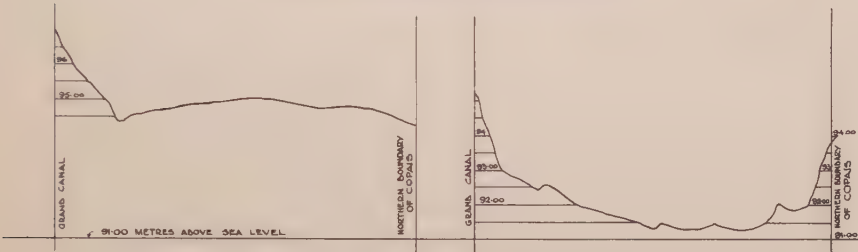
- SECTIONS OF THE BED OF LAKE COPAIS -
 - SHOWING THE CHANGE IN PROFILE BETWEEN 1882 AND 1933. -

1882.

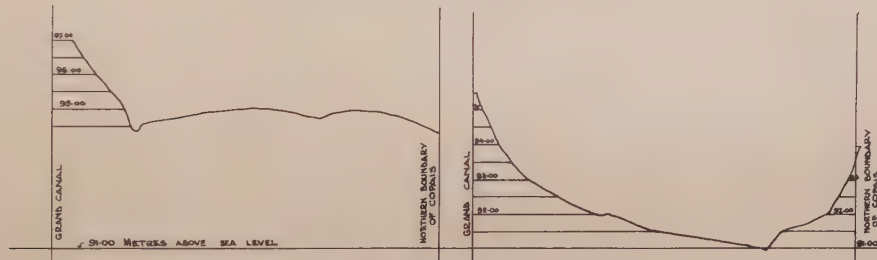
1933.



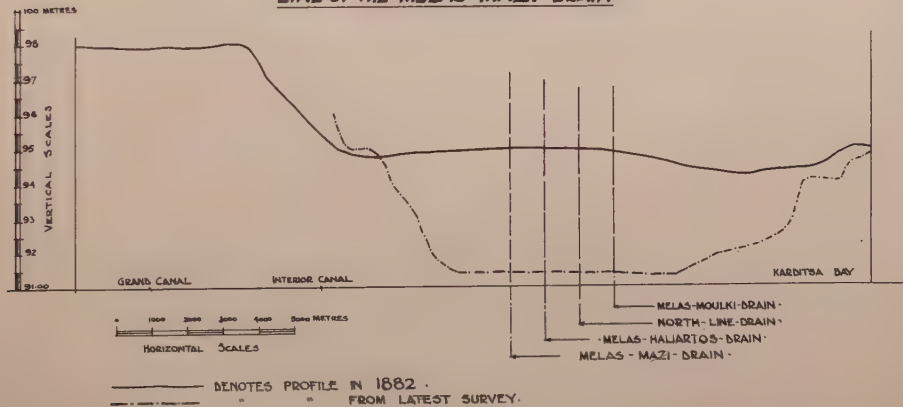
• LINE OF THE MELAS-MOULKI-DRAIN •



• LINE OF THE MELAS-HALIARTOS-DRAIN •

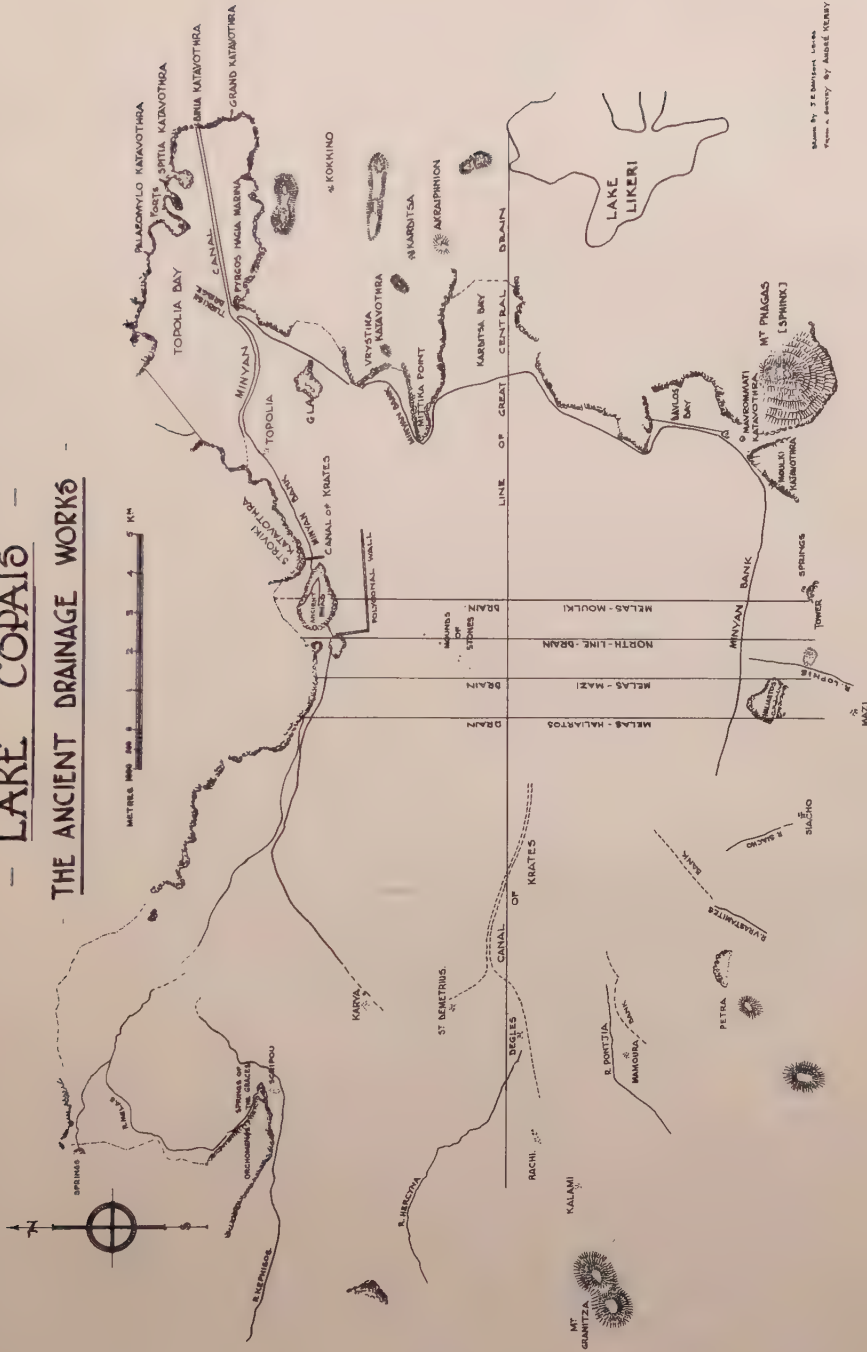


• LINE OF THE MELAS-MAZI-DRAIN •



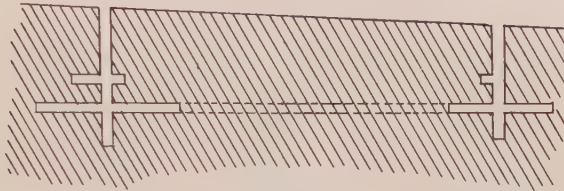
LINE OF THE GREAT-CENTRAL-DRAIN •

— LAKE COPAID — THE ANCIENT DRAINAGE WORKS



Drawn by J. E. Harrison, Esq.
From a survey by J. E. Harrison, Esq.

• THE KEPHALARI TUNNEL •
• LAKE COPAIS •



SHAFT 15

• SECTION •

SHAFT 16

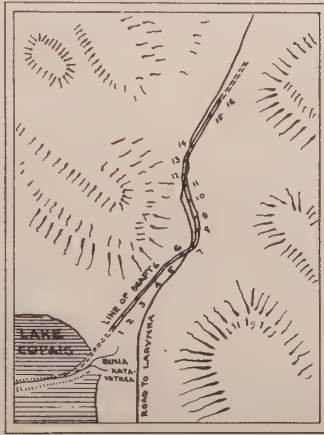
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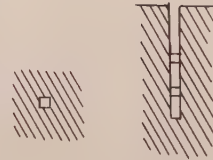


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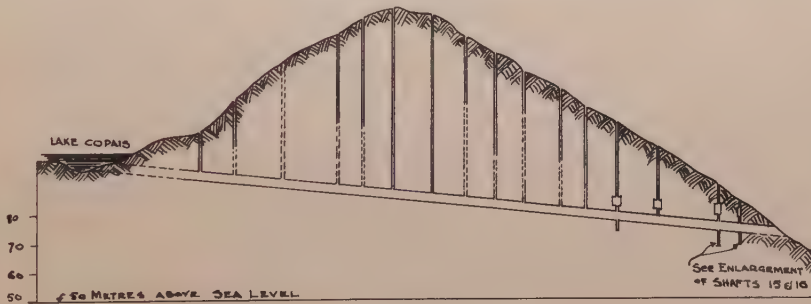
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• PLAN •

• SHAFT 16 •



• SECTION •

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a. MINYAN WALL FACED BY WALL OF EPAMINONDAS.
b. MINYAN EMBANKMENT WALL NEAR TURKISH BRIDGE.

A KEELED DUG-OUT CANOE FROM CHESHIRE

By R. NEWSTEAD

WITH PLATES LXIV-LXVII

THE canoe here described was found by Mr. G. E. Rock, Gamekeeper of the late Lord Wavertree's Estate at Oakmere, on 28th September 1935. At the time of its discovery the mere had reached an exceptionally low level owing chiefly to excessive pumping operations for a local water supply, and partly also, it may be, to the prolonged drought of 1934-5. These causes had exposed the tip of the prow above the level of the mere (Pl. LXIV, Fig. 2). Mr. R. Russel Crewdson, who has the shooting rights over the estate, realised the importance of the discovery and promptly informed the Curator of the Grosvenor Museum (Mr. Alfred Newstead), being anxious that the relic should come to Chester.

The writer of this paper first saw the canoe on 2nd October. At that time the whole of the overlying stratum had been removed from the interior of the vessel (Pl. LXIV, Fig. 2). Five days later it was excavated successfully and without the slightest damage to the timbers. The canoe was temporarily stored in Mr. Russel Crewdson's garage; and on 16th October was removed to and placed on loan at the Grosvenor Museum, Chester, on the authority of Mr. R. Neilson, one of the Trustees of the late Lord Wavertree's Estate. The site (see map, p. 208) lies on the SW. shore of Oak Mere, almost immediately opposite the early encampment occupying the higher ground near the E. shore of the mere (O.S. 6 in. Cheshire Sheet, XL, NW.). The deposit in which the canoe was buried (Pl. LXVI, Fig. 1) was completely waterlogged below the water line, distinctly wet above it, and supported a fine crop of rushes (*Juncus*). The keel of the vessel was resting on a solid bed of glacial gravel and silt, and was covered with a shallow stratum of sand interstratified with peat. The last named contained some small branches of oak (*Quercus*), one stick of willow (*Salix*), and one of birch (*Betula*). Among the soft-wooded plant remains were several large fragments of the leaves of the water-lily (*Nymphaea*).

The timber out of which the canoe was formed is of oak, and the butt end of the tree forms the prow, where the medullary rays are clearly indicated (Pl. LXIV, Fig. 1). The condition of the timber varied: that at the forward portion, including her prow, was hard, and resembled

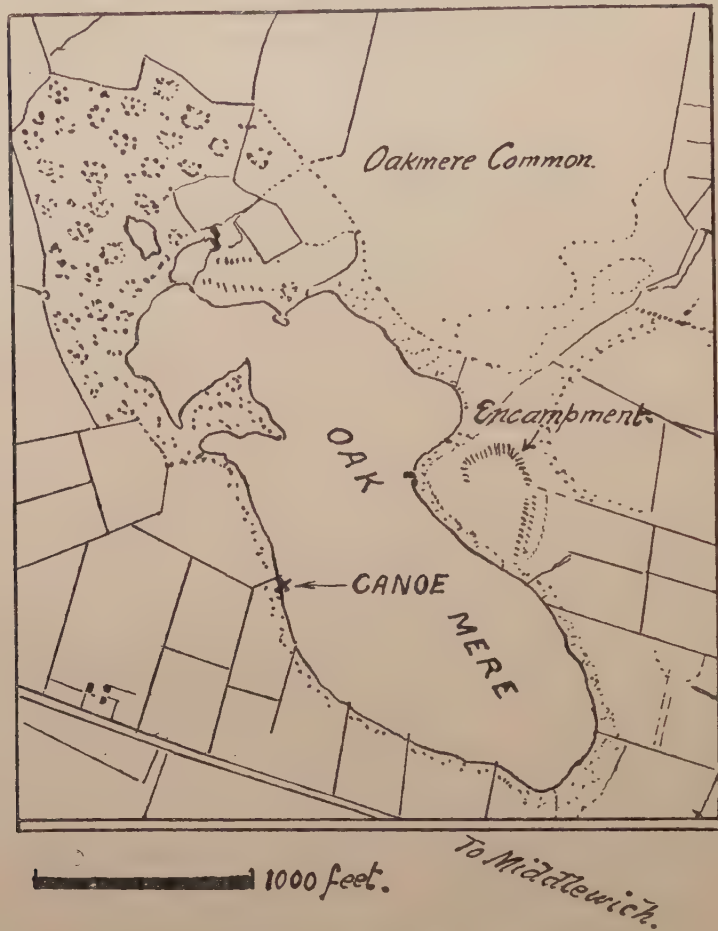


Fig. 1.—OAK MERE, SHOWING POSITION OF CANOE (X).
Scale: 6 inches to 1 mile.

Reproduced from the Ordnance Survey Map, Cheshire Sheet, XL, NW., by permission of the Controller of H.M. Stationery Office. Printed by T. and A. Constable Ltd.

blackish bog-oak in appearance. The thin piece of oak from her port side (Pl. LXVII, Fig. 6) was also in a similar state of preservation. On the other hand, the stern, though of the same colour and general appearance as the rest, was relatively very soft and caseous-like in its degree of hardness.

The length of the vessel from stem to stern is 11 ft. 10 in. (3·60 m.). The internal width (beam) throughout is 2 ft. 1 in. (·637 m.); her maximum depth from floor to edge of gunwale, 7·9 in. (·20 m.); over the ribs, 6·6·3 in. (·154 m.-·16 m.). The two ribs, cut in the solid, are equidistant from the ends of the floor, and are continued upwards to the edge of the gunwale; they are low convex in section and give an average width of 11 in. (·28 m.). The average thickness of the floor amidships (Pl. LXVI, Fig. 4) is 4·7 in. (·12 m.). Both prow and stern are solid and internally slope outwards at a well-defined angle from the floor (Pl. LXVI, Fig. 3). Her sides and base-line are straight, and the ends are broadly rounded. The tip of the prow (Pl. LXIV, Fig. 1) is angular in outline, and below it are well-marked bilateral processes, giving the prow a distinctly tridentate appearance. It may be that these bilateral processes are merely fortuitous and due to the decay of the adjacent parts; but when seen immediately after the vessel was excavated they had all the appearance of having formed part of the original design of the vessel, and may have served for the attachment of a mooring rope or the like. Unfortunately part of the more prominent of these processes on the starboard side is now missing; the photograph, however, shows it as it was first found, when it gave a maximum length of 2 in.

The keel¹ is broad and shallow, and is continued upwards to the top of the stern; and at the forward end it gradually tapers and narrows upwards, forming a narrow shallow stem.

There are two great rifts on her port side: one fore and the other aft (Pl. LXVI, Fig. 3). The former had been patched with a thin piece of split oak (see below) attached to the vessel by pegs of wood. The other rift had not been so mended, but the rift leads to a crack which passes right through the thickness of the stern, at which point it had been pieced together with eight pegs of wood (Pl. LXVI, Fig. 2, at *A*). Unfortunately the upper piece corresponding to that with the peg-holes is missing. All of the rifts and cracks had evidently taken place while the vessel was still in use, due in part probably to unequal contraction and in part also to the knotty nature of the timber; but there is no indication of warping in any direction.

A large bore-hole with a minimum diameter of 0·7 in. (*c.* ·015 m.)

1. Only one other example is recorded as possessing a keel. Cf. *Antiquaries Journal*, Vol. VI, p. 139, fig. 8. This from the Lincolnshire Fens.

passes through the port side of her stern (Pl. LXVI, Figs. 2 and 3), probably for mooring purposes—apparently a not unusual feature in dug-out canoes.

The piece of oak with peg-holes (Pl. LXVII, Fig. 6). This, though detached when found, was lying flat against the outside of the canoe on the port side near the bow end. It had been split from a large log along the lines of the medullary rays, and varies in thickness from .008 m. to .003 m. It has a maximum length of 23 in. (.585 m.); has twelve peg-holes, and traces of two additional ones on the lower edge. Eight of the holes are clean cut (not burnt) and of two dimensions: the larger are almost circular, measuring .010 m. \times .009 m., .012 m. \times .010 m., .010 m. \times .009 m., and .011 m. \times .010 m. respectively; the remaining four: .008 m., .008 m. \times .006 m., .006 m. \times .005 m., and .007 m. Three of the pegs (oak) were *in situ* when found: two of them flush on both sides; the other projected slightly on the outside, and the boring into which it had been driven was cut obliquely. Apart from the borings it bears no trace of tool marks.

The peg-holes in the vessel (Pl. LXVII, Fig. 5). Nine of these have been traced, four of them with the pegs in position. Three of the latter pass completely through the timber, the fourth is driven into the floor of the vessel. Eight of them register more or less with those on the piece of split oak. But why there are more holes in the latter than have so far been traced in the vessel is not clear. On the other hand, it seems quite clear that the piece of split oak had been pegged to the canoe to stop a leakage in her timbers.

The main characteristics of our dug-out may be summarised as follows:—

It is parallel sided, with a rounded stern and pointed or beaked prow. Has two internal ribs cut in the solid. The floor is rectangular in plan and flat in both directions. The sides vertical in the interior, rounded on the exterior. The broad keel extends upwards at both ends of the vessel.

It is finely modelled, and has markedly clear-cut distinctions suggestive of a late development. No datable material was found with it.

In his delightful paper on 'dug-out' canoes, their typology, etc. (*Antiquaries Journal*, VI, No. 2 $\frac{7}{8}$ (1926), pp. 121-51), Sir Cyril Fox has given a tentative classification of the monoxylous craft, found in England and Wales, based upon typological characteristics. He divides them into

five groups. Our canoe, however, does not fit exactly into any one of them. But in the plan of her gunwale she closely resembles the example from Llangorse (Group III). The latter, however, has no ribs and differs also in other structural details. If, however, the small size of our craft is to be considered as an outstanding feature, then it might be placed as an aberrant type in Fox's Group IV ('Canoes from Lancashire,' *loc. cit.*, p. 139).

ACKNOWLEDGMENTS

We are extremely indebted to Mr. R. Neilson, Joint Trustee of the late Lord Wavertree's Estate, for placing the canoe on loan at the Grosvenor Museum; also for his keen interest in its preservation, and for the material aid in the excavations. We are also indebted to Mr. R. Russel Crewdson for his prompt action in recording the discovery, and for his keen interest and material aid in many ways. Our thanks are also due to Mr. G. W. Clegg, who supplied a man to help with the excavations. Personally I tender my thanks to my colleagues, Messrs. David L. Miln and G. B. Leach, for the use of their cars, which enabled me to visit the site on several occasions, and so take prompt action in an investigation which proved a thrilling experience, not only for myself, but also for all those who participated in the recovery of the relic.

For information regarding the preservation of such relics we are indebted to Sir Cyril Fox, Director of the National Museum of Wales. 'Carbolinum' was used by us as a preservative, and applied freely every three or four days. At the moment (November 22, 1935) all the moisture seems to have evaporated, and although slight shrinkage of the sides and innumerable small cracks have developed, the original form of the vessel has in no way changed.

REVIEWS

Das Heroon von Kalydon. Von EJNAR DYGGVE, FREDERICK POULSEN, und KONSTANTINOS RHOMAIOS. With 7 plates and 157 illustrations in the text. Copenhagen : Levin and Munkgaard, 1934. Kr. 18.50. (*Mémoires de L'Académie Royale des Sciences et des Lettres de Danemark.* 7th Series. Vol. IV.)

A book about Kalydon with no mention of the story of Atalanta—in some ways the most modern of Greek tales—this is indeed *Hamlet* without the Prince of Denmark. Yet we cannot blame the authors for our disappointment. It is not their fault that their careful investigation of an Heroon, built first in late Hellenistic days and elaborated in the second century after Christ, should prove that the hero therein honoured was not the luckless Meleager but one Leon worshipped as the new Herakles. Rather we must thank them for what they give us: a very careful account of the architectural details of such a building in the second century, the type of which they show to have much in common with the private house, and still more with the gymnasium. The whole is illustrated with a number of excellent photographs adequately reproduced, and many plans and architectural drawings by Mr. Dyggve which seem beyond praise for their perspicuity and clear lines.

We shall, however, look forward to Messrs. Dyggve and Rhomaïos' promised volume on the Temple of the Laphrian Artemis, in the hope that the home of the goddess, who was the villain of the piece, can hardly be treated with such complete avoidance of all the poetry bound up in the name of Kalydon.

J. P. DROOP.

Stamped and Inscribed Objects from Seleucia on the Tigris. By R. H. McDOWELL. University of Michigan Studies: Humanistic Series, Vol. XXXVI. University of Michigan Press, Ann Arbor, Michigan, 1935. \$3.50.

This book is a striking example of the way in which archaeology can minister to history. Two house-rooms gutted by fire were dug out, and a collection was made of a number of lumps of clay bearing seal impressions, often very imperfect, which had been saved from disintegration by the very fire that destroyed everything else.

Now, after three years, there has sprung from this unpromising material a vivid picture of the administrative and fiscal organisation of Seleucid Babylonia! The outline of this picture is firmly drawn in the final chapter, 'Conclusion,' and anyone reading it to gain a notion of what the book is about might feel a certain incredulity. Yet after he

has read the closely reasoned chapters in which the meaning is discussed of the different types of the impressions and of their combinations, his incredulity will have given place to admiration of the ingenuity, the logic and the patience with which the conclusions have been worked out. And though no more than probability is claimed for any one of these conclusions he will find that dovetailed together they form a completed structure strong enough to carry conviction, and he will put down the book with a more or less comprehensive idea of many of the offices and sub-offices of the government and of the fiscal system that imposed taxes on the sale of salt and on the sale and importation of slaves. An interesting point which is brought out is the overwhelmingly Greek character of the upper commercial class in Seleucia in the third and second centuries B.C.

The book is marred by a certain pomposity of style, and personally I much dislike the use of 'whose' as the genitive of 'which.'

Rather more than a third of the sealings are illustrated, but the illustrations are unworthy of the book. The photographs indeed are excellent, but they should have been reproduced on a larger scale, or in colotype, which allows of the use of a lens at need.

J. P. DROOP.

Zeitschrift für Rassenkunde und ihre Nachbargebiete. Band I, 1935, Heft I. Edited by EGON FREIHERR VON EICKSTEDT. Stuttgart, Ferdinand Enke Verlag.

We give cordial welcome to a new anthropological journal devoted specially to the study of race and all its kindred problems. The *Zeitschrift für Rassenkunde* is designed to be a kind of clearing-house of information for those engaged in such studies whereby this shall be made generally available in a language that is widespread. For this purpose German, French and English are accepted, though German predominates—naturally, the enterprise being German in inception. Yet its international character is well reflected in the list of its participants, who between them represent eighteen nationalities.

The scheme of the journal comprises a first half consisting of a series of articles, and a second half under the title *Umschau und Fortschritten* divided into three parts: a series of short notes, a set of classified notices of books and, lastly, items of news in the anthropological world classified geographically.

The fare provided in the first number is varied and solid, the most solid item being a study by the editor of traces of the Mediterranean race in the people of Wales. Other papers deal with the Aryan origin of the Polynesians, Race-study in Poland, the present position of the Colour peril, the influence of economic conditions on the mixture of races, Tacitus' remarks on the Chatti, and Race survivals in the Oases of the Sahara.

The price of the Band is R.M. 22.

J. P. DROOP.

The Indus Civilization. By ERNEST MACKAY, D.Litt., F.S.A. Lovat Dickson & Thompson Ltd., London, 1935.

This little book gives a clear and succinct account of what the spade has revealed in the last thirteen years of the civilisation that occupied the Indus valley during the earlier part of the third millennium B.C. Contacts with Mesopotamia have more or less fixed the date of the latest remains at the town site of Mohenjo-daro, which so far has provided the chief evidence, at about 2550 B.C., and the absence of change observed in the lowest levels that it has been possible to reach makes it difficult to date these more than five hundred years earlier, if so much. It is greatly to be hoped that money will be forthcoming to allow of the exploration of the lower levels—a costly operation because of the need of continuous pumping.

The people used copper, if not bronze, implements; made pottery on the wheel, and painted it with distinctive designs in black on a burnished red slip; were great builders in baked brick; had brought sanitary engineering to a high degree of excellence; and were, it appears, a peaceful folk devoted to agriculture and commercial pursuits.

They used, it seems, a pictographic script, but this has so far only been found on seal amulets. The engraving of the designs on these seals, the making of ornaments in semi-precious stones and various metals, and the carving and moulding of figurines in glazed steatite, vitreous paste and bronze seem to have satisfied their limited artistic instincts. At any rate no larger works of art have been found, nor do the remains of their buildings show any attempt to appeal to the eye. Of the religion of this people little is known, but the figurines and amulets suggest that they worshipped a Mother Goddess and various gods identified with animals, while it has been deduced from the elaborate bathing arrangements found in more than one building that ritual baths found a place in their cult. The book has a bibliography and an index, but would have been improved by more illustrations. The writing is marred by the continual use of 'whose' as the genitive of 'which.'

J. P. DROOP.

Prehistoric Assyria. By M. E. MALLOWAN and I. CRUIKSHANK ROSE. Humphrey Milford, 1935. 21s.

Some importance attaches to the publication of the excavations at Arpachiyah, the first-fruits of the British School of Archaeology in Iraq, a publication worthy of the occasion. The absence of an index to the text may be regretted, but there are an index to figures and a catalogue of objects which are admirable.

The first chapter introduces us to the tepe, describes its relations geographically and culturally to the district around, and explains the correlation of the levels in the mound itself and those in the low ground

adjacent to it. Thus the table on p. 21 shows how the highest level of the stone roads in the flat area corresponds to that of the burnt house in TT 6 and the zenith of the polychrome pottery in the tepe; how the most developed form of tholos with antechamber corresponds to the lower level of the stone roads outside; that the strata on the tepe below TT 10, where no tholoi occur, are characterised by pottery less well baked but more elaborately decorated than the later varieties; and that, whereas Samarra ware was imported into TT 6 or even earlier, it does not occur below TT 10.

The possibilities of absolute chronology are delicately sketched (though the short chronology for Ur of Dr. Christian and Dr. Weidner is ignored), and the chapter ends with a very useful table of correlations between Arpachiyah Nineveh, Tall Ḥalaf, Ur, Uruk and Susa on p. 25. I was rather puzzled to find on p. 4 a reference to the Yezidi language which I have always imagined to be merely a Kurdish dialect; the phrase is rendered more strange by its context, which seems to imply that it is different from Kurdish. On p. 6 the authors suggest that Arpachiyah was occupied by 'a peaceful community of peasants and potters . . . in times of stress, like the village dwellers of ancient Greece, they could seek the protection of the walls of their parent city and take refuge behind the barriers of Nineveh.' This theory that Nineveh acted as a city of refuge for the surrounding villages is plausible and probably true for many periods, but if Arpachiyah and its metropolis were in such close touch it is strange that their pottery should sometimes be so different (as for example it was during the Al 'Ubaid period).

Indeed we may say that whereas the excavation of the deep pit at Nineveh greatly simplified the study of prehistoric cultures in Mesopotamia, the work at Arpachiyah, through no fault of the excavators, has increased our difficulties. Why is Al 'Ubaid pottery common at Arpachiyah and not at Nineveh? If Arpachiyah is the Kerameikos of Nineveh, why is the grey ware of Nineveh so scarce there? Why should Samarra sherds appear earlier than Tall Ḥalaf ware at Nineveh but later at Arpachiyah? Probably some of these discrepancies may be due to the narrowness of the deep trench at Nineveh and the relatively small quantity of pottery of the Samarra kind, and the former reason may explain the absence of tholos buildings in the excavated area at Nineveh. What relationship, if any, exists between these early tholoi and those of the Aegean area and of Western Europe? The suggestion that the Arpachiyah tholoi might have been roofed with a conical dome like those on Yezidi shrines is interesting and plausible. It is unfortunate that the tholoi had been destroyed down to the levels of the foundations and stripped of their contents, since we do not know their original purpose. There is no evidence to suggest that they were tombs like their younger cousins in the west, though there are two instances of burials 'within the precincts' in Tall Ḥalaf times and other intrusive burials of the Al 'Ubaid period. The authors note a dump of 'mother

goddess figurines' and five Tall Halaf sherds adjacent to the outlying tholos on square Fd V2, and suggest that the tholoi may have been shrines, perhaps of the mother goddess.

Chapter 3 is occupied by a discussion of the Al 'Ubaid burials that intruded upon the Tall Halaf strata on the west side, and provided not only a very complete series of Al 'Ubaid vases but a splendid series of seals. In this cemetery were found not only forty-five inhumations of a normal type but also many instances of fractional burial. On pp. 36-38 the authors discuss this custom.

I doubt, however, whether we can regard all these fractional burials as a certainty. The individual bones of any one skeleton do not always decay at a uniform rate, and many comparatively recent skeletons are far more decayed than those of Arpachiyah. I quote some Saxon examples from the cemetery of Holywell Row in Suffolk recently excavated by Mr. J. C. Lethbridge. In No. 1 grave the bones were 'very much decayed.' In No. 7 grave 'very much decayed. No trace of ribs, vertebrae, pelvis, or end of long bones. No facial bones.' In No. 16 the skeleton was 'not well preserved and partly disturbed by beasts of some kind possibly human but probably rabbits.' There are no rabbits, of course, near Arpachiyah but there are plenty of jackals, and some burrowing rodents might have disturbed certain graves (to say nothing of the 'human beasts' alluded to by Mr. Lethbridge).

I do not wish to reject offhand the theory of 'fractional burial' but merely wish to emphasise that the Saxon evidences for such a practice seem stronger than the Mesopotamian, and some of the Arpachiyah fractional burials hardly deserve to be so described (*e.g.* that in grave 30, where the skeleton though crushed seems to be complete except the pelvis).

In Chapter 4 there is a very clear and comprehensive account of all the Al 'Ubaid pottery with a typology of shapes, a few words on the technique, a division of the pottery into three groups A, B and C according to the strata in which they were found, and a more summary description of the unpainted vases. The drawings are admirable.

On page 63 important resemblances are noted between vases of Arpachiyah and others characteristic of the Uruk and Jamdat Nasr cultures, and an interesting (and plausible) hypothesis is suggested that the polychrome wares of Jamdat Nasr are to be derived from the same source as those of Tall Halaf.

The authors suggest that the grey ware typical of Nineveh may have overlapped with the very end of the Al 'Ubaid period. If the Nineveh grey wares succeeded and only just overlapped the Al 'Ubaid pottery we should have a convincing explanation of the absence of the former ware at Arpachiyah and of the latter at Quyunjik, but we should have to postulate the desertion of Quyunjik during the earlier and that of Arpachiyah during the later period.

Chapter 5 contains an account of the miniature vessels in pottery

and of all the stone vases. Especially interesting is the small obsidian vase (Fig. 44, No. 15) 'evidently ground out with a cylindrical drill.' Most of the stone vases were of the Tall Halaf period and in form differ as a rule from the pottery. Certain bowls (Fig. 44, Nos. 7-10, 17 and 18) are supposed from their associations in the potter's house in TT 6 to have been mixing-bowls and are compared to the painter's bowls from Honan in China.¹

Chapter 6 contains an account of the figurines in terra-cotta and in unbaked clay and of certain odds and ends. The figurines consist chiefly of 'mother goddess' types, doves and cattle. The authors note the parallels with Minoan Crete. The association of dove and goddess at Arpachiyah is proved not only by their provenance but by the fact that they are sometimes painted in a similar fashion. The painted designs are severely representational and always seem to reproduce structural features (such as wings), or details of clothing such as the cross braces of Fig. 45, No. 2, and Fig. 46, No. 8 (a trait very characteristic of Anatolian figurines). The Maltese cross on the shoulder of Fig. 45, No. 10, should be remarked, and the humped ox or buffalo of Fig. 48, No. 13. Among the odds and ends were the 'bent clay nails,' spindle whorls, 'gaming pieces,' sling bolts, and possibly a reproduction of a pronged winnowing fork. Fig. 49, No. 23, shows a disc lid fixed to its vase with bitumen. The authors claim this as a discovery, and, indeed, the proof may be new, but the theory is old (cf. Heurtley and Hutchinson, *B.S.A.*, Vol. XXVII, pp. 37 and 38, and Fig. 22).

In Chapter 7 the authors discuss amulets, beads, seals and seal impressions, and remark that the Arpachiyah examples seem more closely related to those of Iran than to those of Babylonia. Five double axe pendants (A 861-865 and Pl. VI, b) remind us of Minoan Crete, and the oxhead amulet (895 (B) and Pl. VI, b) is interesting not only because of Western parallels but also because he is obviously a short-horn, whereas the oxen painted on the Tall Halaf were certainly long-horns: A 33 (Fig. 51, No. 21) should be described, I think, not as a bobbin but as a plummet. A 33 is correctly, I believe, identified as an inflated water-skin, and suggests the possibility that the *kelek* was already known to the prehistoric people of Arpachiyah as a means of river transport. The amulet A 11 in the form of a building with pitched roof is very important. The authors very aptly compare it to a modern granary at Arpachiyah, but then proceed to identify it as a house and to regard the long stem as merely a practical convenience; may not the parallel be closer (in one respect), and may not this amulet represent a granary supported high above the ground to protect it from rodents (a type of granary for which there are modern analogies)?²

The eighth chapter is concerned with cult objects and implements of

1. P. 76, and *Illustrated London News*, October 28th, 1933.

2. See F. Oelmann in *Hausurnen oder Speichurnen*, Bonner Jahrbuch, 1929, pp. 1-39.

stone and bone. The most interesting of these were a group found in one room of the painter's house in TT 66 (Pl. X, a).

The group consisted of a limestone figurine of a 'mother-goddess,' a tiny male figurine in alabaster, one human finger bone and five models of such bones in stone and a miniature trough bowl in steatite. The 'mother-goddess' looks vaguely Ægean but I do not recall an exact parallel; the alabaster figurine is said by the authors to be Sumerian in character, but the photograph does not allow us to confirm or refute this point and I should have preferred a drawing to supplement it. The set of stone finger bones is unique, so far as I am aware, and deserves special study.

In the same house were discovered a painter's stone palette (one of several from this site) closely resembling a much later palette from Honan in China (No. 923 and Pl. X, a, and p. 100). Other stone objects included a diorite bowl, a limestone mace head, a double axe of basalt, a magnificent chain of obsidian links and four 'cult objects' (a phrase used by most, perhaps all, archaeologists to describe objects they do not understand. Really, Mr. Mallowan! I had thought better of you). Incidentally, one of the cult objects (Pl. X, f) is described on the plate as being composed of basalt but in the text (p. 100) as of sandstone.

Chapter 9 gives a full and well-illustrated account of the magnificent polychrome pottery from the burnt house in TT 6. Well may the author declare that it is perfect after its own kind. Perhaps the two best are the polychrome plates illustrated by coloured plates (A 748 B on the frontispiece and A 751 B on Plate XVIII), but there are others that I find most satisfying in design, such as A 746, b (Pl. XVI, a), A 714, b (Fig. 60, No. 3), etc. Very interesting is Pl. XX, a, which appears to be a prototype of a well-known Jamdat Nasr form (p. 127). The only criticism I would make is that the vases here called plates would, I think, be more fairly named dishes or shallow bowls.

In Chapter 10 the pottery earlier than level TT 6 is dealt with, a typology and sequence dating are given us for the beautiful 'Arpachiyah cream bowl,' and there is a valuable analysis of various elements of design such as 'stippling,' cables, chequers, cross-hatched triangles and other simple designs.

In Chapter 11 there is a very useful account of the development of the bucranium pattern from a naturalistic to a purely formal design. Other animal patterns are lightly discussed and an ingenious suggestion put forward that stippling is only a stylised version of the leopard's spots (p. 164).

The chapter ends with a comparison between the designs of Tall Ḥalaf pottery and those characteristic of Al 'Ubaid and Samarra.

The final chapter gives a short account of the unpainted, incised and grey wares of Arpachiyah (not numerous but important for chronological reasons), and concludes with a few well-chosen and very cautious words on the foreign connections of Arpachiyah.

R. W. HUTCHINSON,

The City of Akhenaten, Part II : The North Suburb and the Desert Altars : The Excavations at Tell El Amarna during the Seasons 1926-1932. By H. FRANKFORT and J. D. S. PENDLEBURY, with a chapter by H. W. FAIRMAN. Pp. i-x and pp. 1-122, with 53 Plates and 8 Text Figures. Egypt Exploration Society, London, 1933. Price 42s.

This volume, which is mainly concerned with the Northern Suburb of Akhenaten's city, is a valuable contribution to the history of domestic architecture. It is interesting to see that the ceilings in houses of Akhenaten's day were fashioned exactly as they are in a modern Egyptian peasant's house—i.e. of rafters and palm-ribs covered with mud plaster. The authors are to be congratulated on their clever reconstruction of the grated window (pp. 10 f.). The plaster remains clearly show that the windows in this room were set high in the wall just below the roof.

The evidence seems to prove that the corn-bins attached to the private houses were of two types: the one with walls about eight feet high and a domed roof, and the other with much lower walls and a flat roof.

Some of the houses evidently possessed a second story, anyhow, above the front hall, with columns supporting the roof. An interesting find, probably part of a thief's loot, was made in the courtyard of a hovel. It consisted of twenty-two bars of gold, much silver, and the silver figurine of a Hittite god (Pl. XLIII, pp. 59 ff.).

Among other noteworthy objects discovered in the ruins of houses are the small limestone figures, probably toys, of a monkey playing on a harp, a full-grown and baby monkey riding in a chariot, and two monkeys embracing, possibly caricatures based upon the well-known representations of Akhenaten's religious and domestic life.

Good examples of the sculpture of the period are the quartzite head of a princess (Pl. XXXIX) and the statuette of a private individual (Pl. XXXVII). The inlaid box, the wood of which had entirely perished (Pl. XLI), must have been a work of some beauty, and Mrs. Pendlebury, Miss Chubb and Mr. Sherman are to be congratulated on the skill they displayed in raising intact sufficient parts to make a reconstruction possible.

In his chapter on the pottery found during these excavations Mr. Pendlebury maintains that there can be no doubt whatever that the examples of Ægean ware dug up at Amarna are contemporary with the city.

Among the numbers of amulets, ring-bezels, pendants, scarabs, beads and clay-sealings recovered from the ruins are many new types. Those bearing royal names indicate that the Northern Suburb was built during the later stage of the city's existence. Some of these small faience objects, as can be seen from the drawings on Pl. XLIV, are most attractive.

The granite bowl (p. 102) is an important discovery, for, as the authors point out, it gives support to the view (further evidence for which is provided by Mr. Fairman in his chapter on the inscriptions) that there was a co-regency of Amenhotep III and Akhenaten, lasting some time after the foundation of the 'city,—a co-regency which will allow Amenhotep III to be the father of Tut'ankhaten and which simplifies the whole chronology of the period (p. 102).

A. M. BLACKMAN.

Tell El-Amarna. By J. D. S. PENDLEBURY. London: Lovat Dickson & Thompson Ltd., 1935. *Price 6s. net.*

This pleasantly written little book will surely be welcomed by those —and they are by no means very few in number—who are interested in Akhenaten and all that he represents. Mr. Pendlebury deals here not only with the history of the el-Amarna period and the art, architecture and religion of Akhetaten, but he has also much to tell us about the daily life of the inhabitants of that ephemeral city.

Many of his statements—based largely on the evidence supplied by recent excavations—will be new to those of us whose knowledge of the history of the reign of the Heretic King has been gained from the writings of Professor Breasted or the late Mr. Arthur Weigall. For example, Mr. Pendlebury maintains that there was a co-regency of Amenophis III and Akhenaten that lasted for nine, or possibly eleven, years; that Amenophis III spent the last years of his life with his son at Akhetaten; that in the latter part of his reign Akhenaten attempted a compromise with the priests of Amūn, and, to that end, having made Smenkhkērē co-regent with himself, sent him to Thebes to bring about a reconciliation; that Nefertiti was the real unyielding champion of the Aten-cult; that she quarrelled with her husband on religious and possibly also domestic grounds, and accordingly withdrew to a palace of her own in another quarter of the city, taking Tut'ankhamūn to live with her; that she exercised complete control over Tut'ankhamūn and his *entourage* when this boy succeeded his much older brother Akhenaten on the throne; and that it was not till after her death that the young king deserted Akhetaten and established himself at Thebes.

The theory that the peculiarities in Egyptian art during Akhenaten's reign are to be attributed to a sudden intensification of Minoan influence (p. 126) deserves serious consideration, as does also the remark that both the Minoan and the el-Amarna civilisation give 'the same impression of the unmoral' (p. 157). More, one feels, might have been written with profit on the religion of the period, for there is an abundance of material on that subject. And why the remark (p. 149), 'Incense perhaps was burned, but that is uncertain'? That incense was burned in quantity in the temples of the Aten is made quite clear in the article 'A Study of

the Liturgy of the Aton' in the *Recueil d'études égyptologiques dédiées à la mémoire de Jean-François Champollion*. Here be it observed that the translation of the famous hymn to the Aten, which has been made for Mr. Pendlebury by Mr. H. W. Fairman, is in many respects an improvement on previously published translations. Particularly noticeable is the correct rendering of the word *dmdy(t)*, 'appointed time,' which has always hitherto been mistranslated.

The two chapters on the public buildings and private houses are excellent and supply the ordinary reader with just the information he desires. Finally, let it be said that the illustrations are well chosen and all, except Fig. 1, Pl. VIII, well reproduced. The last named is so small that the subject is hardly distinguishable, even with a magnifying glass. Such a fine example of the el-Amarna school of painting surely deserves a much larger scale photograph!

A. M. BLACKMAN.

HERMANN GRAPOW: *Untersuchungen über die altägyptischen medizinischen Papyri*, Part I, in *Mitteilungen der vorderasiatisch-ägyptischen Gesellschaft*, 40. Band, 1. Heft. Leipzig, J. C. Hinrichs, 1935.

This is the first time that such a systematic study of the whole group of ancient Egyptian medical papyri has been attempted, and Dr. Grapow has already in this first portion of his researches rendered a service to students of ancient Egyptian medicine.

The author is probably correct in his view that the similarity of language employed in the diagnoses occurring in Papyrus Smith and Papyrus Ebers indicates a near relationship, and he is evidently of the opinion that these diagnoses are all ultimately derived from a closely associated group of medical and surgical practitioners. He also rightly points out how different is the wording of the diagnoses and prescriptions. In the former finite forms of the verb are employed, and the writer expresses himself in continuous sentences. In the latter occurs a much abbreviated phraseology consisting of words loosely strung together. This dissimilarity, Grapow maintains, results from the difference in aim of the physician (or surgeon) and the apothecary.

After a careful analysis of Papyrus Ebers and Papyrus Hearst, Grapow comes to the conclusion that, apart from the old book on the heart and arterial system, the former papyrus is a compilation of single prescriptions or small groups of two or three at the most. The compiler, he thinks, must have had before him a collection of prescriptions written on slips which he arranged more or less in order according to subject while actually engaged in copying them out.

The continuation of this study will be awaited with some eagerness by all who are interested in the history of medicine.

A. M. BLACKMAN.

TELEILAT GHASSÛL. I. *Compte Rendu des fouilles, 1929-32*. Par ALEXIS MALLON, S.J., ROBERT KOEPPÉL, S.J., et RENÉ NEUVILLE. Rome, 1934. 4°. Pp. xii+177, with 64 figures in the text and 72 Plates.

The untimely death of Father Mallon brought temporarily to a standstill the investigations which he had been conducting zealously for several years, and prevented him from seeing in final form this handsome volume in which his most important discoveries are described. A striking photograph of the dead scholar and a short account of his life are added appropriately to the Preface.

Tell Ghassoul is an inconspicuous site in the Rift almost opposite to Jericho, on the east side of the Jordan. Father Mallon singled it out for excavation with great discernment, and carried on his work in short successive seasons with admirable perseverance, notwithstanding the problems aroused in his own mind, and the doubts and perplexities of other archaeologists, following his first discoveries. His was, in fact, a piece of pioneer work in a new field. His results astonished all: new styles of hand-made pottery, painted and ornamented; some quite wonderful mural paintings, seemingly primitive; and a fresh grouping of flint implements mostly conforming with the 'Cananean' types but with distinctive variations and additions. Though baffled, for the time being, no less than others, in his efforts to explain and place the culture thus revealed, Father Mallon pursued his quest, seeking light from every open excavation in the country, until in the end he had established his position. Unhappily many of his observations are now lost, or were too briefly registered; none the less the volume contains a conscientious record of the material results, and by comparison with the stratification of Jericho, described elsewhere in this number of the *Annals*, it is possible to assign most of the pottery to a definite place in the development of Palestinian ceramics.

The characteristic Ghassûlian pottery is fully represented in the chalcolithic level at Jericho, *i.e.* in the deposits found (in the 7th metre) between the upper Neolithic and the Earliest Bronze. Examples from nearly every page of the volume under review invite comparison with specimens published in our Plates XXXVIII-XLII. Space will not admit an exhaustive list, but the following selection will illustrate the main fact:—

Fig. 38. Thick rims of jars. Cf. Jericho, *Annals*, Pl. XLI, 1-5.

Fig. 41. *Ibid* with small ledge handle. Cf. Jericho, *Annals*, Pl. XLI, 7, 8.

Fig. 40. Mat patterns on bases. Cf. Jericho, *Annals*, Pl. XLII, 37, and the photographs.

Fig. 41. Indented patterns on rims. Cf. Jericho, *Annals*, Pl. XL, 7-11, 14, etc.

Fig. 41. Bosses, conical. Cf. Jericho, *Annals*, Pl. XXXIX, 12.



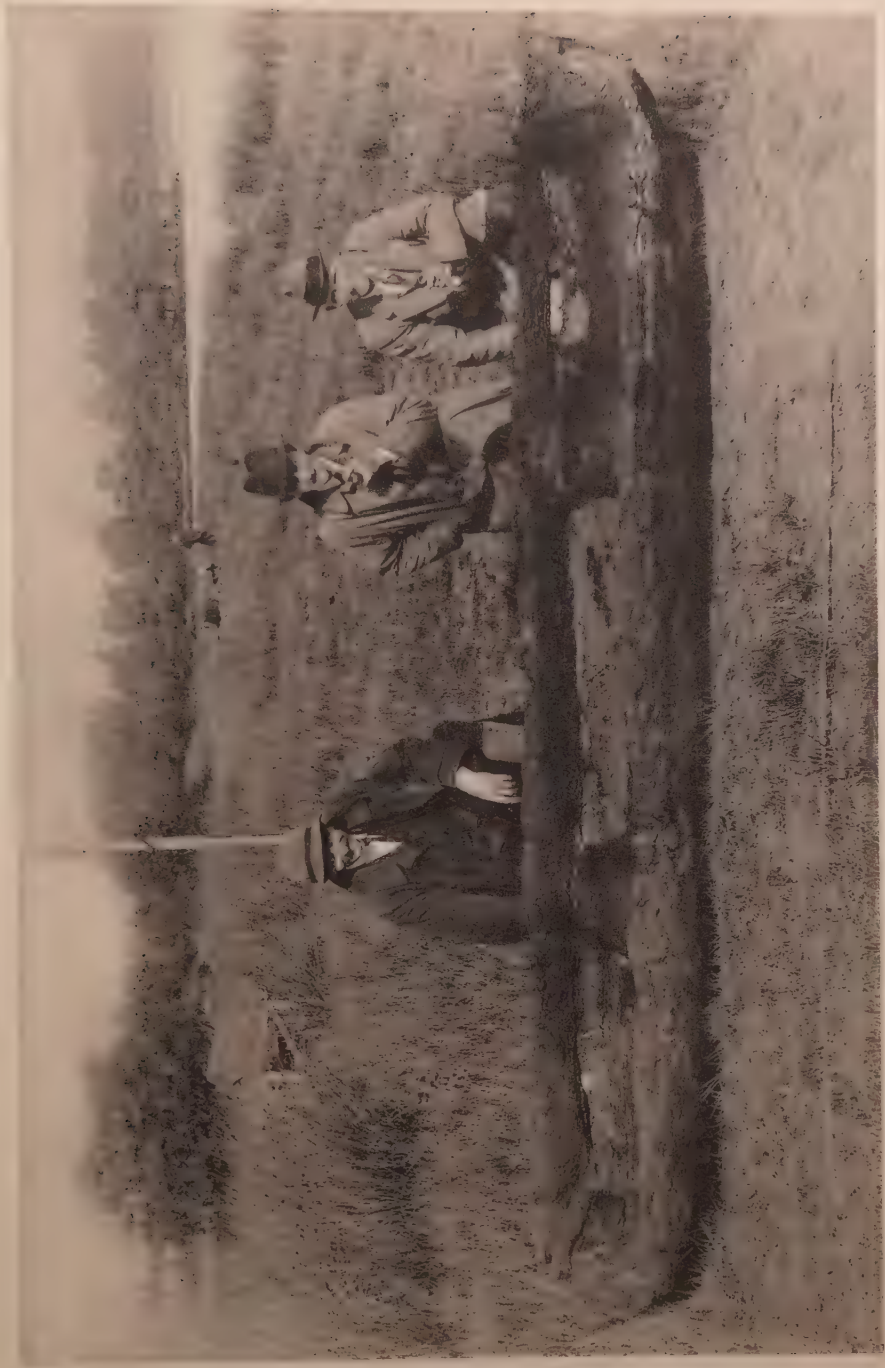
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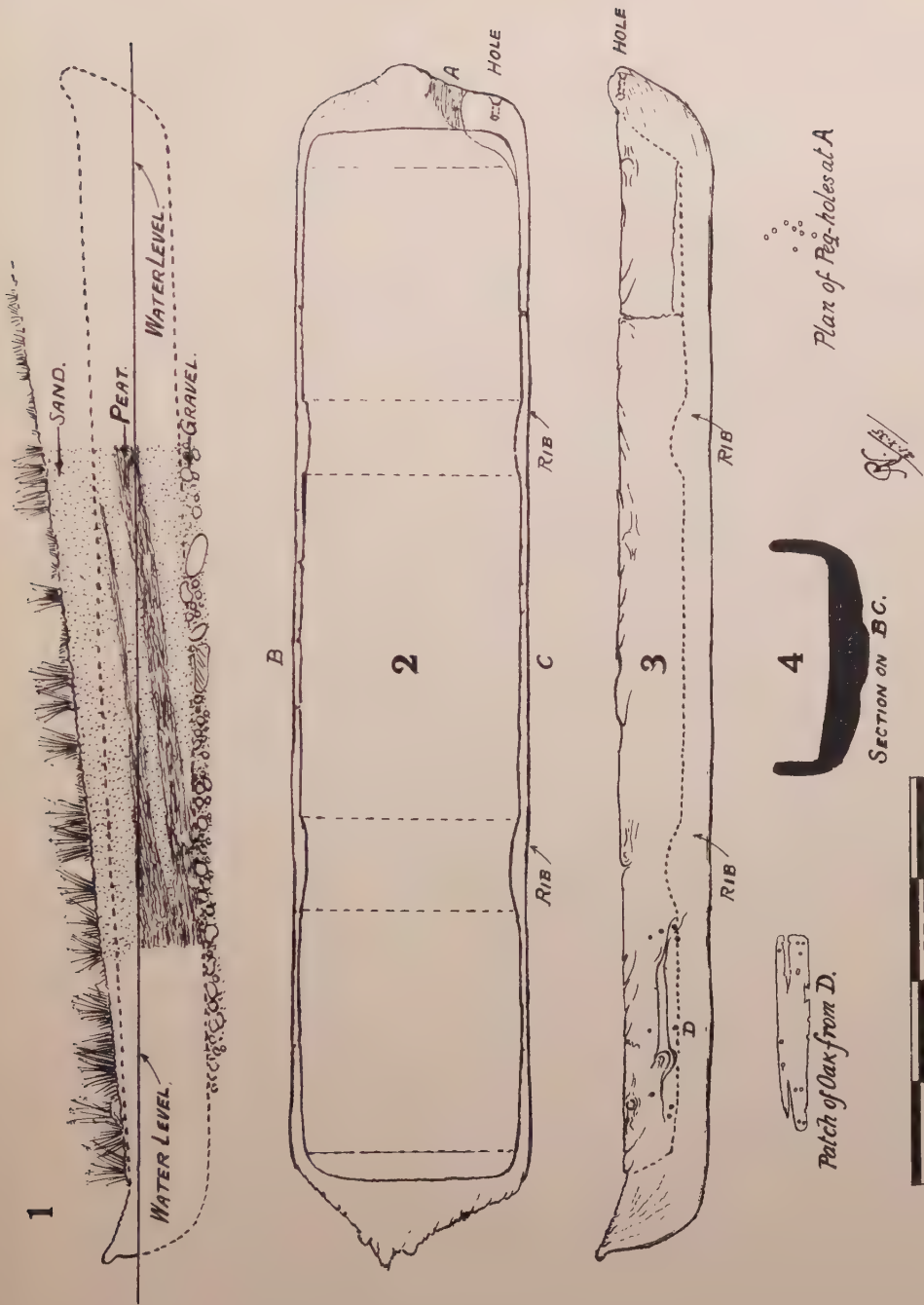
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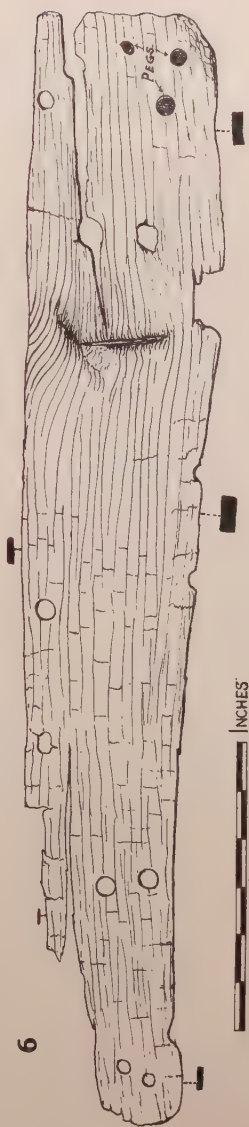
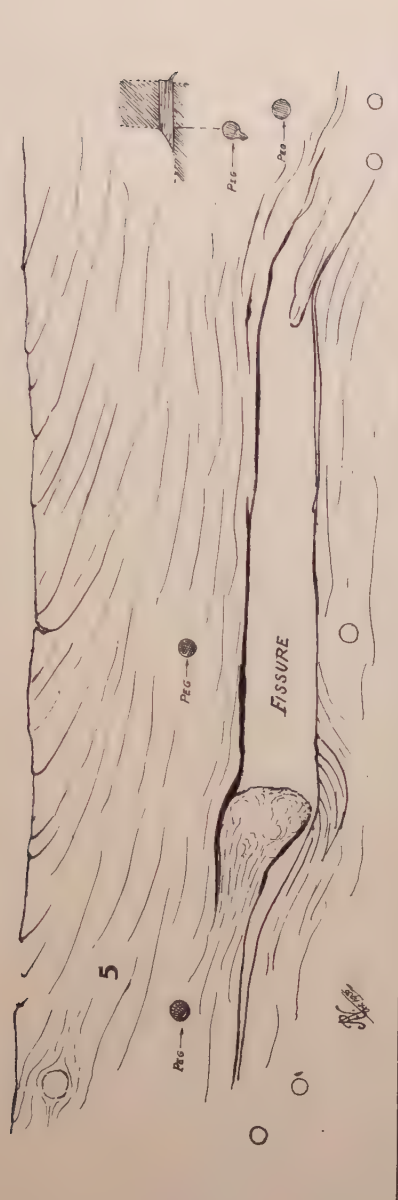
DUG-OUT CANOE, OAK MERE, CHESHIRE.

1. FORE PART OF THE CANOE SHOWING KEEL AND STEM.
2. THE CANOE *in situ*. THE OVERLYING STRATUM REMOVED,



DUG-OUT CANOE, OAK MERE, CHESHIRE.
THE CANOE IMMEDIATELY AFTER EXCAVATION.





OAK MERE, CHESHIRE.

1. PLAN OF PEG-HOLES IN SIDE OF CANOE.
2. PLAN OF PEG-HOLES IN PIECE OF SPLIT OAK USED TO STOP LEAKAGE.

- Figs. 42, 43. 'Flower-pot' forms. Cf. Jericho, *Annals*, Pl. XXXIX, 13, 16, 19.
 Fig. 56. Holed pedestals. Cf. Jericho, *Annals*, Pl. XL, 35.
 Fig. 62. Indentations in festoons. Cf. Jericho, *Annals*, Pl. LI, 28.
 Pl. 40. Ledge and lug handles with nicked edges. Cf. Jericho, *Annals*, Pl. XXXV, 17; Pl. XLI, 6.
 Pl. 41. Pair of small ledge handles, holed. Cf. Jericho, *Annals*, Pl. XLIII, 6.

These examples, together with a study of forms and fabrics, suffice to establish the parallelism of the ceramic culture; and the comparison may be extended to other features, such as certain orthostatic foundations, circular pavements, and more generally the series of flint implements. A word of caution is necessary, however, as regards Père Mallon's uppermost level (IV), in which there seems to be quite a large proportion of objects of E.B. i (*e.g.* the spouted bowl shown on Pl. 44, A). Unfortunately the indications of provenance are not always clear in the publication, so that a general conclusion may be misleading; but it certainly looks likely that stratum IV represents a later culture than II and III. The lowest level, I, seems to have contained little or no pottery, and it would be interesting to know whether the flint culture at that depth remained the same in technical character.

J. GARSTANG.

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